TELEPHONY

The Journal of the Telephone Industry

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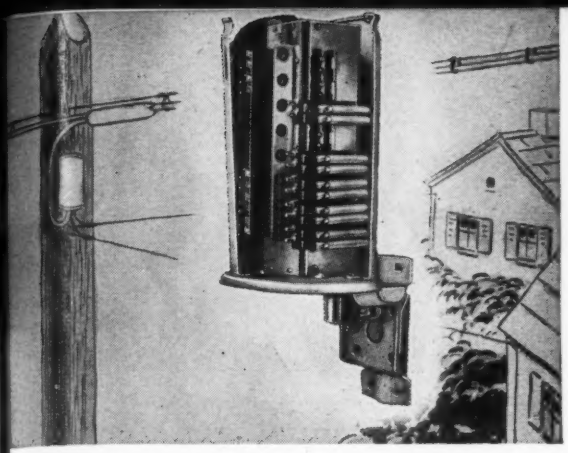
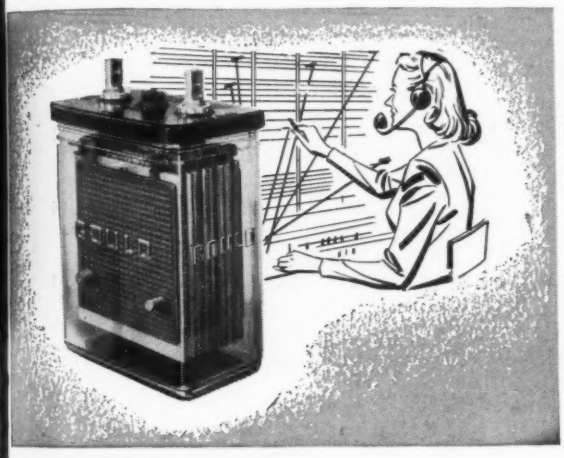
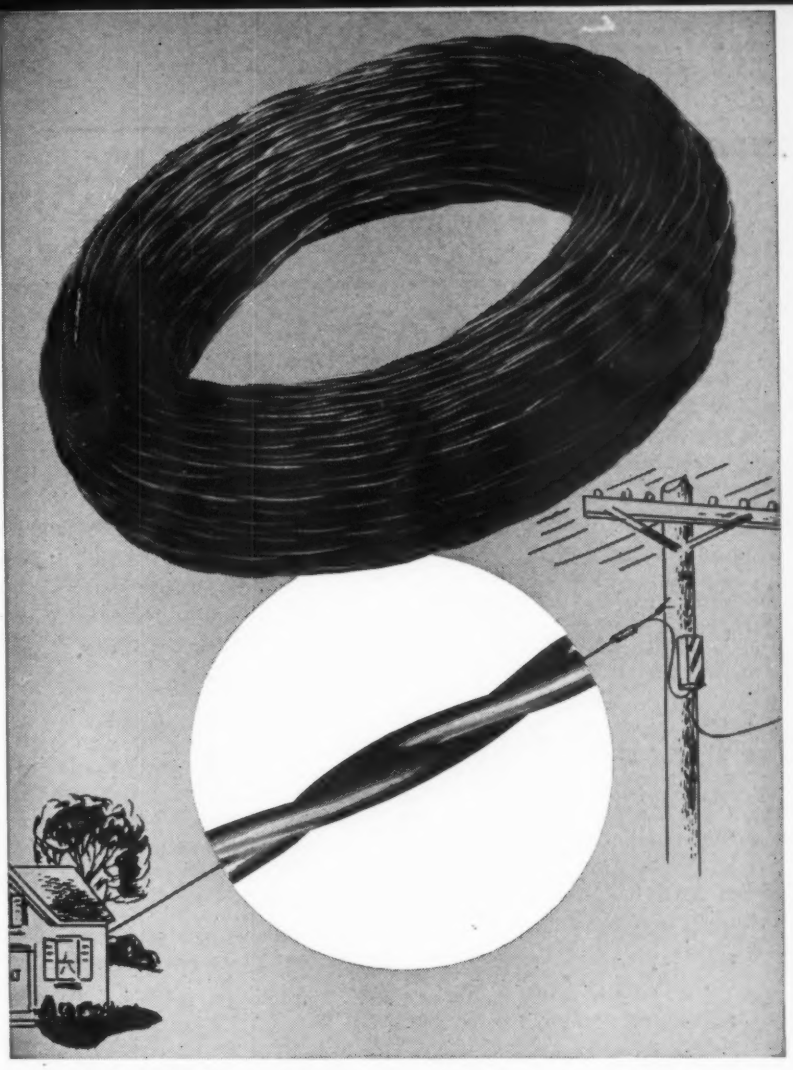
TELEPHONES, SWITCHBOARDS • SOUND EQUIPMENT AND ELECTRONIC CARILLO



The Last Word! Drop connections, fuses and lightning discharges are easily reached at the front in the S-20 Pole Cable Terminal made by COOK ELECTRIC CO. A strong guide pole holds the hood securely in raised position for working ease; self-soldering nozzle lies close to the pole.

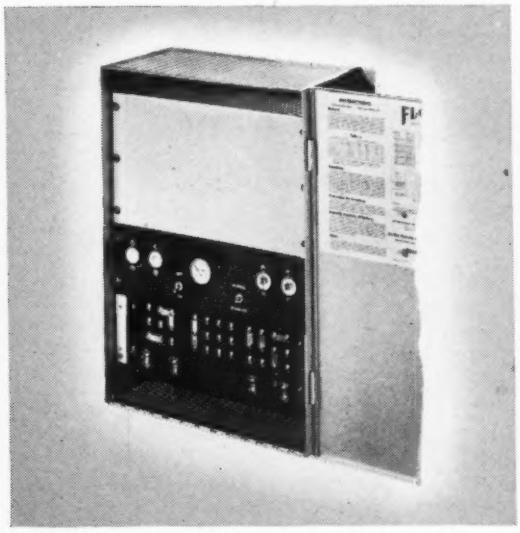


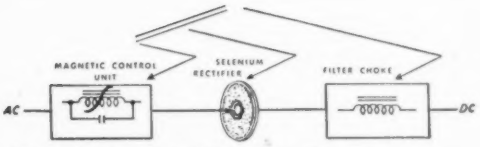
Outstanding Battery Performance is yours when you choose Gould Planté Batteries. Thick, grooved, pure lead positive plates give an amazing number of years of trouble-free service! Made by GOULD STORAGE BATTERY CORP., for telephone men, they're the finest money can buy.



Drop Wire Lasts 30% Longer! GENERAL INSULATED WIRE WORKS Bronze Drop Wire lasts longer because it's drawn of solid, non-corrosive, high-conductivity bronze and covered with Neoprene—the tough insulation that stands hardest use. You'll find that this wire is easier to handle too, for it combines high tensile strength with great flexibility.

Reliable . . . Economical! "Eveready" "Columbia" "Gray Label" telephone dry cells give you dependability, plus economy thru higher sustained voltage and extra service life. Made by NATIONAL CARBON CO., INC. Specify them to assure highest operating efficiency.





No Moving Parts to Wear! The Flotol automatic battery charger, made by LORAIN PRODUCTS CORP., consists of a phase-splitting transformer and a dry-disc rectifier. Delivers constant-voltage trickle charge, compensates for input and load changes.

Drier Than the Driest Desert! Drierite Desiccant is the safer way to dry splices in lead-covered cables. It absorbs all moisture; makes the splice the driest part of the cable. This W. A. HAMMOND DRIERITE COMPANY product will not harm conductors or insulation.

FLASHES AND PLUGS

SUGGESTION FOR SCIENCE. A suggestion from two telephone employes recently aided one of the nation's outstanding research heart specialists in perfecting a new technique to diagnose heart conditions. The doctor needed German silver, which one of the men was able to obtain from the other in the form of solder. It is used in the new equipment, which has now been completed.

In the equipment's operation, a 36-inch tube is inserted into a slit vein in the arm and guided inside the vein to the inner chambers of the heart. The tube is attached to a huge recording machine which notes the condition of all parts of the heart.

• • •

BRAIN GETS WIRES CROSSED, TOO. Comparing the human brain to a telephone exchange, a doctor on a British Broadcasting Company program told his listeners that it has five times as many "telephone wires" as there are people in the world, and consists of 10 billion cells, each of them like a tiny battery with a wire running from it to carry the current.

"As we walk and run and read those telephone wires are humming with messages to and from the brain," he pointed out.

"When the brain is tired it gets its messages muddled. It may tell you that nine eights are 64. You may forget things or drop things and not hear what people are saying to you. Your mental batteries are run down. They need to be switched off so that they can charge up again and it is sleep that switches them off—or nearly so."

• • •

STOP, MY NERVES! Installation of a telephone in a home, intended to increase the happiness of the occupants, drove one man to distraction.

One night he got 180 calls for the correct time, the following night, 112, and the third night, 217.

Finally, about midnight, he gave up. He parked by the telephone and started giving the "correct time."

"No use trying to sleep," he said.

The trouble was that his number was 8-2561 and a correct time service's number was 8-5261. Sleepy callers, in need of the time, had trouble hitting the right combination.

• • •

BELL WALTZ TURNS LOHENGRIN. "The Bell Waltz," written by Donald Voorhees as a theme song for "The Telephone Hour," the nation-wide radio program broadcast every Monday evening by the Bell System, is evidence that waltzes can be nuptial music as much as the triumphal strains of Mendelssohn and Wagner. It became a wedding march recently in London when Miss Anita Arden, long-time listener to the program, married Guy Middleton, British movie actor.

Miss Arden, former Powers model and show girl, chose "The Bell Waltz," because of the pleasure she had found in listening to the program. Born Anita Freund, she is the daughter of telephone people. Her mother was a cashier with the New York Telephone Co. for seven years, and her late father was an installation foreman for the Western Electric Co.

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY

July 9, 1949

Contents

DIAL SERVICE MANAGEMENT 11
By John B. Horne

IN THE NATION'S CAPITAL 14
By Francis X. Welch

THE PLANT MAN'S NOTEBOOK 18
By Ray Blain

PLANT MAN'S QUIZ 19

MAINTENANCE TESTING EQUIPMENT—Part XX 22
By John A. Bracken

NORTH DAKOTANS HOLD 41st ANNUAL CONVENTION 24
By A. J. McInnes

COURTS AND COMMISSIONS 27

COMING 1949 CONVENTIONS 34

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Dial Service Management

By JOHN B. HORNE

The author, since his retirement from the Bell System last year, after 45 years of service, has been engaged as a consultant by various Independent companies in the southwest. Twenty-two years of his Bell service was spent in traffic work in Texas.

In his article, Mr. Horne outlines some of the traffic fundamentals, which he thinks should be considered in engineering dial conversions and in operating the equipment after it is installed.

EVERY day throughout the country manual telephone exchanges are being converted to dial operation. There is probably not a single manual exchange owner who has not given conversion serious consideration because of the operating economies and the more uniform service which will result. Besides these factors, there is the strong public preference for dial service as being more up-to-date and "citified," which is constantly pushing many manual owners toward conversion to dial operation.

If the central office to be converted is larger than the non-attended community dial office class, a very large expenditure for equipment is often involved. The large companies can afford to employ trained engineers whose main function is to figure the proper quantities and arrangement of equipment required, to supervise operation, and to foresee and plan subsequent extensions. Of course, most owners cannot afford supervision of this type and rely to a considerable extent on engineers employed by the manufacturers of telephone equipment to give them similar service when buying new equipment.

In the typical case, as soon as the owner of the plant has decided to start a conversion program, he will call on some manufacturer for an estimate of the cost and the latter will send an engineer to study the situation. The owner doubtless will already have figured out for himself the number of lines and terminals he wants to buy by estimating the number of lines and main stations he thinks he will have in service by the end of a certain period, perhaps a year, after installation is completed.

In arriving at his estimates of line and terminal equipment required, he will allow a small percentage spare, say 3 per cent for lines and 5 per cent for terminals, to take care of line distribution and numbers temporarily unassignable because of directory changes. Since it will take a year or more to get delivery on the equipment, this "guess" on requirements will be looking two years or more into the future and, in times like these, this estimating represents a difficult problem.

Cases have occurred where the guesses were lower than the actual needs at the conversion date when the latter finally rolled around, creating a situation where deferral of conversion date and emergency efforts by the manufacturer to secure more equipment at the last moment were necessary to stave off disaster.

In making these estimates of lines and stations required at some future date, important points to be considered are the volume of unfilled orders which may be now held and the percentage of these orders which are probably valid; also what is to be the program for estimating growth—will party line service be pushed to the limit or will upgrading be permitted after the conversion? This point is of great importance because an increase in the average number of stations per line will increase the calls per line and, if not properly allowed for by the engineer, this will upset the loading of the line finder groups.

In order to compute the quantities of the various types of switches required and the proper trunking arrangements, the manufacturer's representative will also require an estimate of the busy hour originating calls per station and the "holding time" or duration of the average call. He will obtain these data by taking peg counts and plug counts on the manual switchboard, and he will combine them with the station estimate to obtain the total originating busy hour call seconds which may be expected at the end of the engineering period. He will compute the number of switches and trunks needed to handle just this volume of traffic.

For example, if there are to be 3,000 stations, each producing .85 calls during the busy hour, this will give a total of 2,550 busy hour originating calls; and if the holding time is 120 seconds per call the total busy hour capacity engineered for will be $120 \times 2{,}550 = 306{,}000$ call seconds or 3,060 hundred call seconds, usually expressed as 3060 CCS.

The above are the basic data on which the engineer will make his study of dial requirements. In addition, of course, he will have to assist in formulating a numbering plan, and secure agreement on volume and method of handling toll calls, rural lines, and other points which have a bearing on the design of the equipment and the service to the customers.

The exchange owner then places an order for the new dial equipment. The number of lines, stations, originating calls and toll calls which the new plant is designed to carry are very definite figures which bear his approval. Hence, he cannot afford to sit back with the comfortable feeling that

there is nothing more to worry about until the equipment is installed and ready for the cutover. He should at once set up a running record on which will be entered each month the actual number of lines, stations, originating calls and toll calls in order that he may check the growth and the rate of progress toward the estimates used as a basis for the order.

The best way is to plot the actual figures each month on a sheet of cross section paper on which space is left for entries up through the conversion to the date for which the equipment was designed to last. By this means he can more easily project the growth over the future intervening months based on the present trends. If at any time the growth seems headed materially higher than expected for any of the items, it will be well to consult with the engineer who made the original study to determine the best course of action.

To recognize the importance of this, one need only to recall the length of time normally required to get delivery on dial equipment jobs. Usually a shortage of equipment can be remedied only after a long delay which may result in serious customer reaction.

It is not within the scope of this article to attempt to describe the multitude of tasks which the local management must perform incident and prior to the final cutover operation. Each department has many special duties. To name a few, the commercial people must look after the publicity and the new directory issue; the traffic people must make the line and terminal assignments and retrain toll and assistance operators; the plant people must connect the outside cabling to the new main frame, make all cross connections, install dial instruments with incidental instruction on the use of the dial at each home visited, and make plans for the actual transference of local and toll service to the new plant.

Much could be written on each of the above items and there are many more. A point to be kept in mind is that preparation for a dial cutover is a teamwork job. The common practice is to form a committee of representatives from each department. This committee will make up a "progam" on which will be listed every item of work which any member of the committee may suggest. Each item will bear a required completion date and the name of the man responsible for its completion. With this program the committee can periodically check the progress of the work and prevent the lagging of any essential items. This "program" plan has been used by many companies for a long time, and it should not be difficult to secure a program actually made up in the past for a similar cutover to use as a framework for a new conversion which may be developing.

Once the dial office has been turned over to the local management and placed in service, the average owner often has the idea that it requires very little further attention on the part of management except to connect up additional lines and terminals as may be needed for new customers. This will be true only if all the basic assumptions as to growth, calling rates, holding time, etc., turn out to be correct estimates of actual conditions. As this result is seldom realized, it is advisable to make continuous, or at least periodic, checks of the service and the loading of the equipment. Service may often be improved by minor operations without involving any great expense if some means is available to detect the weak spots.

One of the most important points is the necessity for keeping the traffic load evenly distributed between all the line finder (or line switch) groups. Usually these groups are all engineered for the same call load; they are each equipped with the same number of switches, and it is assumed that if there are, for example, 10 line finder groups serving the flat rate service lines, each will carry 10 per cent of the total originating call load involved. This means that in some way the line assignment work must be directed toward bringing about a very even load distribution between line groups. At the time of the cutover this is usually aimed at by assigning the same number of lines to each group and also keeping the percentage of each class, that is, FB-1, FR-1, FR-2, FR-4, PBX and rural lines, the same in each line group.

To go a step further, each trunk of a PBX group is usually assigned to a different line group. In this way the office will start off with a fairly good line load distribution, and care should be taken to see that subsequent day to day line assignments follow the same pattern.

It may be worth while to look at the analogy between a manual "A" board position and a line finder group. The line finder group may have 200 lines served by 17 line finders, and the "A" board may have an average of 200 lines per "A" board position equipped with 17 cord circuits. However, on the "A" board teamwork is customary between all operators, while on the dial equipment there is no teamwork possible between line groups; each group must stand on its own feet and its capacity is limited entirely by the call load 17 line finders can handle without running into slow dial tone conditions. Thus, it will be seen that while on a manual "A" board an attempt is made to spread the call load over all "A" positions as evenly as possible, when we come to consider the loading of dial line groups the evenness of distribution is immensely more important as far as originating call delays are concerned. With dial service any marked unevenness in line group loading will always result in too many dial tone delays on lines in the more heavily loaded groups, even though the plant as a whole may not be overloaded at all if efficiently used.

What has been said above about line group loading applies also in a general way to connector terminal group loadings. Every connector group serving flat rate city subscribers (other than those specially designed for rotary or consecutive line service) is usually equipped with the same number of connectors. Hence, there is a similar reason for administering the assignment routine in such a way as to preserve this load balance between groups. In one respect, getting out of balance on connector groups is more serious than on line groups because while on the latter the situation can usually be remedied by a few line cross connections, in the case of connector groups any cuts between groups will involve number changes, and, for this reason, an unbalanced condition can usually be corrected only over a considerable period of time. Fortunately, a paths busy encountered on the connectors is usually much less disturbing to the subscriber than is a slow dial tone.

In the preceding paragraphs the necessity for load balance has been emphasized and certain means toward the desired end have been briefly touched upon. Probably the next thought of the reader will be that after making every effort to balance the loading by careful line and terminal assignments, what tests can he apply to prove the effectiveness of his efforts, and to determine the grade of service the dial plant is actually giving.

Naturally, the best way to secure information on every feature of the service is to provide regular service observing equipment. This is expensive to buy and operate and quite out of the question for the smaller plants. By far the most important service feature from the customer's viewpoint is the speed with which the dial tone is received when he takes his receiver off the hook, and this feature is so im-

portant that, whether or not regular service observing equipment is provided, it will usually be advisable to provide the very simple equipment set-up necessary to make speed of dial tone tests.

There are several ways to accomplish this, the simplest being to mount a terminal strip on one end of the intermediate frame and to cross-connect the ring side of one line equipment, located in each line finder (or line switch) group, to a terminal on this strip. The observer is supplied with a pick connected through a head telephone receiver to ground so as to operate the line relay when the pick is touched to one of the terminals. The observer can run across the row of terminals, listening for dial tone on each one in turn, and noting when the delay exceeds three seconds.

The above presumes a spare line circuit in each group to be used for this purpose; if sufficient spare line circuits do not exist the observer's circuit will have to be modified to provide a key, one position of which will throw in a monitoring circuit and the other position of which can be used to bring in the dial tone if no one is heard on the line after monitoring. The timing can be done with a stop watch, but it is much faster and more accurate if it is possible to secure a special three-inch timer which will light a lamp or give a click at the end of exactly three seconds. The general plan is so simple that any plant maintenance man will have no difficulty in setting up some workable arrangement.

If the observer will make tests for an hour or two during the busiest period of the day, one day each week (rotating days), he will secure several thousand observations per month which will be quite sufficient to establish the per cent of calls on which the dial tone delay exceeded three seconds. Care must be taken to select the busiest part of the day for the class of service under observation; this will usually be between 9:00 and 11:00 a.m. for flat rate service.

All line groups are engineered to provide enough line finders so that under busy hour load conditions only a certain small percentage of the calls will encounter more than three seconds' delay in securing a line finder and first selector. The percentage used in engineering is usually about 1.5 per cent since it has been pretty well demonstrated that subscribers will not complain if they encounter slow dial tone on only 1.5 per cent of their calls in the busy part of the day. Of course in light hours this percentage will drop to practically zero so that over all the business hours of the day the average subscriber's chance of encountering a delay is quite small.

The results of the dial tone delay observations, when several thousand observations are available to establish an average percentage over 3″ figure, will be found quite reliable as a measure of the service rendered by the dial plant. If the percentage of delays run 2 per cent or even a bit higher there is no particular cause for alarm unless it is expected to put further considerable growth in the office. If it runs 4 per cent or more there is cause for alarm because under these conditions it will take very little additional load to throw the delays into an unstable zone where the service would be quite demoralized. It should also be noted that if plunger type line switches are used the heating of the rotating relays may become a load limiting factor.

Definite knowledge as to how the dial tone delays are running in an office is very valuable from the management standpoint. It indicates by actual tests how much trouble the average subscriber is having in originating his calls, and enables management to assess more accurately the validity of complaints received, and to make correct decisions on a factual basis as to how sorely relief of some sort is needed. It will be noted that "relief" as here used may mean more equipment, a change in arrangement of equipment, or possibly only more efficient use of the present plant.

If the dial tone delays are running excessively high in an office, it is sometimes advisable to make "switch counts" to further analyze the cause. As applied to line finders, this would mean counting the number of line finders in use in each group every three minutes for the busiest hour of the day and computing the average for each group of the 20 observation figures thus made. This operation would be repeated for two or three days to secure a more average figure.

For example, assuming 20 line finders equipped per group, the results might show Group 1—average in use 10.7; Group 2—average in use 14.0; Group 3—average in use 12.5, etc.—the over-all average for all groups being 11.8.

These results would denote first, that the load balance between groups could and should be greatly improved, and second, that enough equipment over-all is provided if the load is properly balanced between groups. According to the probability tables usually used, an 11.8 average in use for a group of 20 line finders is well within the range where not more than 1.5 per cent dial tone delays would be expected.

Without going further into the theory of probabilities the following table may be of use to anyone interested in making a rough check of busy hour line finder usage by the switch count method:

Line Finders Equipped in Group	Approximate Average Line Finders In Use Which Would Indicate Approach to Danger Zone
15	8.5 to 9.0
16	9.5 to 10.0
17	10.0 to 10.5
18	11.0 to 11.5
19	11.5 to 12.0
20	12.5 to 13.0

Of course, in any case there will be moments when all line finders in a group will be simultaneously in use. It is the average in use during a period that determines the service characteristics.

Aside from the dial tone delay the next most troublesome occurrence, from the customer's standpoint, is doubtless the all paths busy or all trunks busy, where the subscriber receives a busy signal before reaching the called station. In engineering, it usually is assumed that it will not be unsatisfactory service if the percentage of calls receiving all paths busy signal does not exceed 4 per cent during the busy hour. This will very likely mean about 1 per cent for the whole day.

In the absence of observing equipment, it is possible to station an observer in the switchroom and let him plug at random into selected line finder test jacks with a monitoring set and note how frequently the paths busy signal is received on the observed calls. However, it is doubtful if this procedure is warranted unless one is dealing with a case in which this particular feature of the service is under severe criticism. The plant maintenance people usually are aware of the serious paths busy situations before they become too aggravated, and will naturally bring them to the attention of the management.

Consideration of the above rather sketchily developed management hints will indicate clearly that a dial plant consists of more than just a standardized package of so many lines and terminals. It is an intricate mechanism, tailored to meet local needs, and requiring constant attention to get the best and most service out of it. This article will have served its purpose if it helps to bring out the realization that there is as much need for service consciousness in operating a dial exchange as there is in manual operation.

IN THE NATION'S CAPITAL

BY FRANCIS X. WELCH
WASHINGTON EDITOR

Senate Finance Committee for reduction in excise taxes. . . . Martin urges outright repeal. . . . State commissions "hit" taxes. Phony co-op dollars make exit as U. S. takes over printing plates.

Excise Tax Cut a Possibility

ALTHOUGH there are still a lot of hurdles before anything will come of the latest movement to cut excise taxes on telephone service, the news that Congress is actually trying to do something along this line should be encouraging to the industry. The amount of the tax cut, as voted by the Senate Finance Committee (7 to 6), was not very large. It would reduce the federal tax on long distance telephone calls from 25 to 20 per cent. It also would reduce the federal tax on monthly bills for local telephone exchange service from 15 to 10 per cent. Telegrams and leased wire service would get a cut from 25 to 15 per cent.

Other proposed tax cuts on utility service included a reduction in the federal tax on all passenger tickets (train, plane, bus, boat, and other common carrier transportation) from 15 to 10 per cent. The tax on electric light bulbs would be cut from 20 to 5 per cent.

In the luxury and amusement line, the proposed tax reduction would cut in half the present 20 per cent tax on jewelry, furs, cosmetics, and toilet preparations, as well as theater and other amusement admission tickets. But the present 20 per cent cabaret tax would not be changed; neither would the liquor excise tax.

The new movement to launch these tax cuts in Congress came as the Senate Finance Committee was considering a minor tax bill already passed by the House. Under such circumstances the upper chamber may, by the process of amendment, deal with the subject of taxes—a brand of legislation which the U. S. Constitution otherwise requires originate in the lower house.

Meanwhile, at the other end of the capitol, Representative Martin, minority leader, announced to the House that he had initiated the formal steps to by-pass the House ways and means committee and bring an excise repeal measure direct to the floor. The move by Representative Martin, which was on a bill he had introduced on Feb. 2 to reduce excises to their prewar level, was made because "it is now obvious that no action can be expected from the committee this year."

When Representative Martin was told that the Senate Finance Committee had approved an amendment sponsored by Senator Johnson (D., Colo.), the Massachusetts representative said: "Splendid! That's what we need at this time to give relief to low-income groups."

Then Representative Martin told the House:

"I have hoped and have patiently waited for action on the part of the ways and means committee. It is now obvious no action can be expected from the committee this year. There is only one thing left to do, and that is the discharge method.

"This legislation is needed to cushion the shock of the recession. It will stimulate business and provide employment to many thousands. It will not materially reduce revenues and it could increase them by the boost it will give business generally.

"Above all, the bill is just. It is wrong to keep a wartime sales tax on the poorer people in a period of recession. It is discriminatory taxation to single out a few industries and destroy them.

"If you are really in earnest about putting people to work and giving some relief to low-income groups, you will pass this bill now."

Previously the Senate Committee, which has had a succession of minor tax bills before it this year, always had refused to countenance the Johnson move to get rid of the war time increase on the so-called luxury items.

Johnson estimated the cut back in rates might reduce government revenues by as much as $550,000,000. But he thought it probably would be considerably less. Republican backers of the Martin Bill in the House, however, held that the lowering of rates might be such a stimulus to trade as to offset entirely the effect of the cut.

Some angry words were heard from Democrats as to Martin's move to discharge the ways and means committee. These congressmen charged that the Republican 80th Congress had made the wartime excises permanent and "at the same time put the government in the red by reducing income taxes."

The Republicans were charged with inconsistency by both Representative Eberharter (D., Pa.), a member of the ways and means committee, and Majority Leader McCormack (D., Mass.). Representative McCormack said he could give "credit to the integrity of the proposed excise reduction if its sponsors would at the same time bring forward a means of offsetting the loss of revenue."

Representative Halleck (R., Ind.) charged that the majority, itself, was showing inconsistency by arguing that the Republican tax reduction was bad but doing nothing to reverse the action.

FCC Items of Interest

The Federal Communications Commission now has only six members; thanks to the delay in the Senate in not confirming President Truman's renomination of Edward M. Webster for another full term. There is no particular opposition to Commissioner Webster, who has proved himself a most able and competent member of the commission, giving it the strength of his splendid technical background in the radio and electronic field.

But Senator Johnson (D., S. C.), who has been conducting a one-man feud with the FCC over the radio broadcasting policy, has the upper chamber sufficiently jittery over all FCC matters, that things as routine as renominations do not go through

promptly and smoothly as they should. Hearings were scheduled on Webster's renomination before the Senate Interstate Commerce Committee later last week. It is believed that Webster will get through without much more than a session of questioning by the Committeemen.

• • •

One other FCC item of interest to the telephone industry was the revelation that the FCC is actually considering opening a branch office in Boston to help the state commissions in handling various telephone rate cases in that area. It appears that, as a result of several New England telephone rate cases which have developed complications, members of the New England Conference of Public Utility Commissioners voted to ask Congress for funds to set up an FCC office in Boston with a staff to assist state regulatory commissions. This action was taken at a recent two-day convention of the New England Conference of Public Utility Commissioners.

Members of the FCC staff were present at the opening session of the conference, held in the Sheraton-Biltmore Hotel in Providence, R. I., to discuss possibilities of a region plan for joint state-federal action in combatting rate increase requests.

One FCC staff member, Hugo Reyer, said his agency has repeatedly tried to get funds for such a Boston regional office, staffed with experts. The conferees were told by William R. Jarmon, another FCC staff member, that the commission has not yet set up a separation formula to determine how much of the total operational costs of the New England Telephone & Telegraph Co. is interstate and how much is intrastate.

Chairman Eugene S. Loughlin of the Connecticut Public Utilities Commission suggested that it might be a simple solution "to have the companies in the American Telephone & Telegraph Co. system break up and organize in individual states if their present bond indentures would permit it."

Chairman of the Massachusetts Department of Public Utilities, Thomas A. Flaherty, asked what luck the states had experienced in getting the telephone company to economize. He said the state of Massachusetts had suggested abandonment of losing cafeterias, cutting of advertising, and making charitable contributions at the expense of the stockholders rather than the rate payers.

Mr. Reyer said that, while all toll rates ought to be uniform, because of custom, they are not. Providence and Boston rates are lower because of a special rate than for calls between other points the same distance apart.

It would take a staff of 150 experts, he said, to supervise on a national basis the matter of whether proper allocation of state costs is made by the Bell companies for their interstate business.

State Commissioners Hit Excise Tax

Another by-product of the Providence meeting of the New England Conference of Public Utility Commissioners was a resolution asking Congress to lift federal taxes which they said are a burden on telephone companies and the Western Union Telegraph Co. The state commissioners were much impressed by recent evidence from industry executives and in rate cases, that high taxes are far more of a factor than corporate profits, in the demand for high telephone rates.

Such figures as those quoted out in California a week previously by President Charles F. Mason, of the California Independent Telephone Association (to the effect that the government is making more money out of both Bell and Independent companies "than the people who own them and try to run them") were cited, at the Providence meeting, as reasons why state commissioners must lend their assistance to the task of convincing Congress that the high taxes on the telephone and telegraph industries must be curtailed.

Chairman Flaherty, of the Massachusetts commission, started the ball rolling along this line with his argument that tax relief is necessary to avert either bankruptcy of Western Union or government ownership by default. He said that the telegraph company is losing $1,000,000 a month and that the 25 per cent tax it must pay on messages, which applies to tolls of telephone companies as well, is higher than luxury taxes imposed on jewelry and cabaret charges.

Flaherty said elimination of the tax would mean a reduction of $40,000,000 annually in the costs to telegraph users, thus stimulating use of the communications medium.

Eugene S. Loughlin, of Connecticut, urged that the conference go on record as opposing use of direct wire and radio communications between government agencies which, in effect, he said, provide government-operated competition with private communications.

The commissioners named a committee to draft a resolution, backing their anti-tax demand, Gov. John O. Pastore of Rhode Island, told the commissioners that their meeting should pool the individual state resources so as to assist the conduct in telephone company rate cases applying to the entire section.

Wickard's Poor Telephone Service

The House of Representatives got into such an ugly temper over passage of the public housing bill that house leaders decided to let the debate and vote on the Poage Bill go over the long Fourth of July week-end. For that reason, there isn't much new to report from the Washington scene on the REA telephone bill (Poage Bill). You might call it the lull before the storm, at this writing.

This gives us a chance to review a recent personal experience of REA Administrator Claude R. Wickard as reported in the July issue of *Co-op Power*. Wickard has a wall telephone in his Indiana farm home, which he said was installed when he was a boy, almost half a century ago.

Last May a small granddaughter was badly scalded in this farm home. Wickard recalls:

"At best, doctors are hard to find in a typical farm area. The telephone had been practically useless for several days.

"However, by heroic effort and urgent pleading my daughter was able to enlist the aid of the operator who relayed her request for help.

"Only through this extraordinary effort was a doctor obtained and first-aid administered.

"When I arrived a few hours later I was not able to get any use out of the telephone at all. A man who repairs the line on a part-time basis told me it would be a day or two before he could get it back into commission.

"He told me that the line was in such condition that it was getting very difficult to repair, and referred to the fact that the old wire had become so hard and brittle through age that it was difficult to splice.

"I told him that after the experience of that day I was hopeful that the service could be improved quickly as I had visions of other emergencies which might arise."

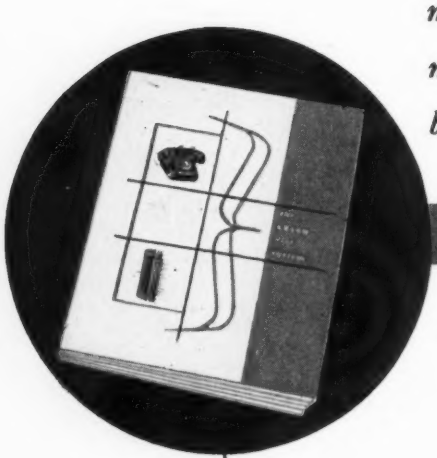
Wickard said that he was informed that $10,000 was needed by the small farmer mutual to which he belongs to put the system in usable order. This incident recalls the advice given to Wickard by Senator Thye (R., Minn.) during the recent Senate Agriculture Committee hearing on the Hill Bill. Thye told Wickard that if he wanted real service, he ought to use his influence to have his farmer co-op telephone system sell out to a *real* telephone company. That is what Senator Thye did; and that is how he got good telephone service.

Wickard, oddly enough, thinks that his experience is an argument for passing a bill which would encourage the creation of similar small farmer telephone co-op companies all over the country.

(Please turn to page 34)

THE NEW LEICH DIAL SYSTE

This is the most simplified dial switchboard you've ever seen. It h fewer, less complicated parts and less to get out of order. With this Leich Dial System you can convert to dial faster, with less expense and less trouble. Any good telephone man can learn to operate and maintain it. All parts, including lines and links, are jacked in. You can't make a bad guess about future expansion. No matter how large you grow, the original equipment can be added to with a minimum of expense, time and trouble. All this may sound almost too good to be true, but it most certainly is. The literature described below gives the complete story.



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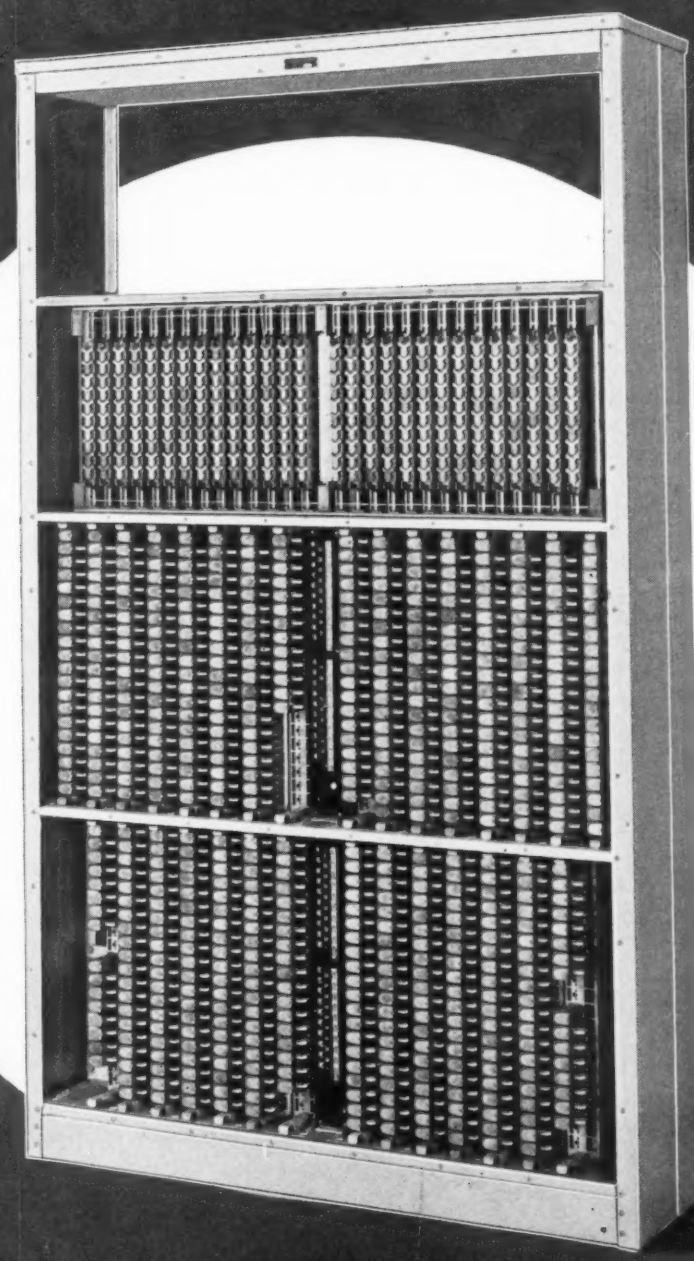

100 LINE UNIT • 50 INCHES WIDE • 88 INCHES HIGH • 14 INCHES DEEP

THE PLANT MAN'S *note book*

BY RAY BLAIN TECHNICAL EDITOR

WE NOTE an article appearing in the June issue of the *New Jersey Bell* magazine which describes a 74-station intercommunication system that was recently installed by the New Jersey company in the warehouse of L. Bamberger & Co., in Bloomfield, N. J. Since this warehouse covers a 12-acre area, it is obvious, therefore, that a man working in the far corner of Cavern No. 8 cannot run several hundred feet to answer a call from the front office. The article goes on to explain that the answer to this problem, posed by distances, is a speaker and microphone set-up so sensitive that a man with a sore throat may stand 40 ft. away from the speaker-microphone and carry on a conversation with someone at the other end of the intercom system.

The 74 stations scattered throughout the huge warehouse make it possible for a message to be relayed from control centers in a matter of seconds to anyone in the entire area. The master control units are located at three main spots where most of the supervisors and administrative personnel work. In each of the warehouse areas there is also a small speaker station mounted at chest height so that any employe can originate a call to the master control stations, as required.

There is little doubt that loud speaking intercommunication systems prove most effective, as an aid to the regular telephone service, when properly engineered, installed and maintained. It is our opinion that this service can best be provided by the various companies and it now appears that the New Jersey Bell is initiating action in the proper manner.

• • •

It has been said: "The most difficult part of getting to the top of the ladder is getting through the crowd at the bottom."

• • •

For the past 20 some years, the writer has "harped" continually on the subject that someone should design a tool for use in forming compression rings in lead sheathed cable to prevent the lead from slipping off the end on a heavy pull. Construction men usually attempt to beat these rings in the lead sheath with a hammer and the majority make a mess of the entire operation.

Now a simple tool is being manufactured for this purpose that consists of two arms hinged at one end and provided at the other end with a screw and wing nut adjustment. A stop secured to one arm locates the tool so that the rounded, polished portions of the arms are in the proper pressure contact with the cable sheath to form compression rings.

Two sets of hinge holes are provided for adjusting the tool to the range of cable sizes, one for cables up to 1½ ins. in diameter and the other for larger cables, up to 2¾ ins. in diameter. This tool weighs only about two pounds.

• • •

We have just received a copy of the sixth edition of "Automatic Telephone Practice" by Harry E. Hershey. This new edition is greatly enlarged, having 256 pages as compared with the 160 page fifth edition. This book will be found extremely interesting and useful to anyone either engineering or maintaining step-by-step dial switching equipment. In our opinion, the "Foreword" by H. E. Clapham, is in itself well worth the price of the book. The book may be purchased from TELEPHONY.

• • •

In our estimation, a worthwhile addition to the television field is a stand with a revolving top so that the set may be shifted for the best view without moving furniture. This turntable top is set on roller bearings.

• • •

Returning home from a motor trip through the South recently, we spent the night in Baxley, Ga. The Bell is evidently rebuilding the exchange outside plant in this thriving town and that night we noticed over a half dozen light installation trucks lined up in the parking lot of a neat tourist home. This reminded the writer of his early construction days down in Oklahoma, when telephone construction crews always had a favorite boarding house in each small town. Back in those days, however, we did not have truck transportation, but had to be content with a slow, mule-drawn wagon, or one-horse-drawn drop wagons.

• • •

Teletype messages leaving the Army Communication Center, in the Pentagon in Washington, D. C., now have the sending time included automatically by an electrical device developed by Syrl K. Ferguson, a civilian engineer of the Signal Corps. This device automatically adds to each message sent, the station identification and the time transmission was completed.

Designed to serve a maximum of 100 teletypewriter circuits that are operated by hole-punched paper tapes, the message timer also stops and starts transmitting machines when appropriate and, after adding the station identification and dispatching time to the message, causes the tape to move enough to permit tearing it between messages. All of these functions are repeated 12 times a minute. The time signal changes every minute.

Automatic timing of military messages is deemed important because it permits analysis and correction of any delays in transmission.

• • •

Any lineman will agree that installing a three bolt guy clamp on a piece of slack strand is always a rather difficult task. This difficulty has been minimized by the design of a malleable iron casting equipped with a pocket for holding the guy clamp while tightening the bolts when assembling the clamps with the strand. This device is provided with a 1 5/16-in. hole for

attachment to the rear end of the construction truck with the customary eyebolt. Lugs which bear against the edge of the scuffle plate prevent rotation of the holder.

A 9/16-in. hole is also provided to permit attachment of the holder to the truck vise bracket with a ½-in. bolt. This device weighs approximately 4⅛ pounds.

PLANT MAN'S QUIZ

Q. Our company is considering a plan to discontinue all telephone dial repairs on the job in the exchange. When a dial develops trouble, the repair man will exchange it for a new one and return the defective one to the storeroom. At the time a predetermined number of defective dials have accumulated, they will be returned to the manufacturer for repair. Do you have any information as to whether this or a similar arrangement has ever been used to any extent?

A. The arrangement under consideration, in our opinion, has considerable merit, but at the same time, several objectionable features. The service arrangement that can be made with the manufacturer of your particular equipment will be an important consideration. For example, how long will be required to repair and return dials to service? Also, how much will it cost? In this connection, if the repairs amount to 50 per cent or more of the cost of new dials, then we doubt that the arrangement will prove satisfactory.

Changing dials on a telephone, though a comparatively simple task, does require considerable time of the troubleman. Often minor repairs can be made at the telephone and thus avoid dial replacement. Moreover, often the replacement of a minor part in the shop of the operating company makes a dial as good as new and a trip back to the manufacturer can thereby be avoided.

It is our belief that all dial repairs, possible to be made, should be effected in the field or the shop of the operating company and that when a dial has depreciated to such an extent where it cannot be repaired locally, then it either should be replaced by a new one or returned to the manufacturer for overhaul, whichever proves the more economical arrangement.

• • •

Q. What is the meaning of the term "static-proof pole line hardware" and how is it used?

A. It has been a well-known fact for some time that one of the contributing factors to radio interference and static discharges is loose contact between hardware units. This condition causes static charged atmosphere between the insulators, conductors and the tie wires on the line. Static-proof hardware has been designed to meet the demands of power and utility companies for a hardware whose components will not come loose because of vibration and wood shrinkage. When installed, the various parts of this type hardware remain in constant and positive contact in order to prevent static sparks.

Washer head bolts, washer nuts and drive grips combine two or more regular hardware items into a single forged static-proof unit. These units provide perfect contact between the several parts to prevent the discharge of static sparks and to reduce maintenance labor costs caused by periodic re-tightening.

Static-proof hardware is used in the usual manner to mount fixtures on poles, but proves more convenient because of fewer parts to inventory, use and lose.

• • •

Q. What is Scotch electrical tape, where can it be obtained, and how is it used?

A. This is a vinyl plastic tape which is especially suited for use on all types of telephone work. It is only .007 ins. thick, but has a 10,000 volts breakdown strength. It is resistant to flame, water, oils, acids, alkalis and corrosive chemicals. It is highly flexible and will mould snugly to irregular surfaces and will remain flexible even at extremely low temperatures.

This tape may be procured from any telephone supplier in rolls ¾ in. wide and 66 ft. in length.

• • •

Q. When desiccant is used in lieu of paraffin for drying cable, must the paper insulated conductors be worked dry?

A. Some splicers may object to the stripping of the cable conductors dry as they consider it somewhat easier to work when impregnated with paraffin. After a little practice, however, the average splicer will usually prefer to handle the dry paper. It is true also that pulp insulation may become rather tough and difficult to strip after being exposed to a humid atmosphere for several hours. In order to overcome this difficulty and to please those splicers who object to working the conductors dry, stripping oil may be used to advantage.

This is a light mineral oil, slightly heavier than kerosene, and when applied is quickly absorbed by the paper insulation. The insulation of the conductors need not be saturated with the oil except for a distance of about two inches or three inches at the point where the conductors are brought together for the splicing to facilitate breaking the insulation at the twisted joint.

The oil may be applied by the use of a small paint brush reserved exclusively for this purpose.

• • •

Q. Have any measurements ever been made of the voltages induced on telephone plant because of lightning discharges?

A. We understand from a large operating company that potentials to ground as high as 50,000 volts have been recorded on open wire telephone lines and evidence of considerably higher voltages has been observed.

Voltages as high as 25,000 have been measured on open wire lines within 700 feet of a protector, but no voltage could be measured across the protector. Potentials of over 25,000 volts on cable sheaths to ground have been measured frequently during lightning storms.

The potentials of the cable conductors are usually about the same as the sheath. When some of the cable conductors are connected to outside lines, however, there may be a considerable difference of potential between these conductors and the sheath or other conductors at the point of connection. This condition does not, however, extend for any great distance in the cable. A potential of 5,000 volts may be measured between a conductor and the sheath at the terminal, but at a point 300 ft. back from the terminal, no potential could be recorded between this conductor and the sheath.

V V

Large Demand in Israel

There are 14,000 applications for installation of telephones awaiting attention in the new State of Israel. Most of the necessary equipment is now being obtained from the United States, it is reported.

Expand your Service... wi

Cat. No. AA-86—Type 47 Monophone

With Automatic Electric dial, and high-impedance ringer for multiple-line service. Supplied complete with connecting block.

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Compact, molded plastic box, complete with distinctively toned high-impedance ringer and wiring for the Type 47 Monophone. Measures 7¼" high, 5½" wide, and 2⅝" deep.

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NOW you can get the equivalent of your favorite Automatic Electric Type 40 Monophone in a special model designed to meet the growing demand for multiple-line service—the new Automatic Electric Type 47 Monophone.

The new Type 47 Monophone with push key controls for answering, holding and switching on two lines, plus signaling or switching over a third line, is basically an expanded Type 40. It has the same anti-sidetone, low-loss circuit that popularized the Type 40, the same handset, same dial and number plate and same sturdy, eye-appealing case.

The new Type 47 Monophone offers greater flexibility than it has ever before been possible to obtain in multiple-line service. Through expanded facilities it finds a wide range of applications among all telephone users. It provides the logical step between one-line, single instrument service and PBX switchboard service.

To expand your service and increase operating earnings, install the new Type 47 Monophone wherever there is need for more than one line.

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MAINTENANCE TESTING EQUIPMENT

By JOHN A. BRACKEN

PART XX. The preceding article appeared in the Mar. 26 issue, p. 26.

TROUBLE on any part of a prepay telephone line circuit outside the telephone exchange, whether it be in a cable, open wire, drop wire, interior wire, etc., will decrease the efficiency of that circuit in proportion to the extent of the trouble.

A ground, open, cross or short circuit will cause an interruption of all or part of the service, depending upon the location of the fault. If a solid short (having negligible resistance) exists, it can be determined by making a resistance measurement on the line circuit with the distant end open, and another measurement with the distant end short circuited. If the result of the measurements are the same, a solid short exists.

Trouble that develops in the prepay telephone circuit itself is not different from those found in other types of telephone equipment and may be detected in a similar manner. However, because of the pay-station set being equipped with a coin relay so wired as to be connected between one side of the line and ground, this feature must be tested in addition to the regular telephone circuit. The first and proper test to make is to localize it.

Where the prepay telephone line drop wire enters a building and a protector is installed, two ground wire connections are required. One of the wires connects between the protector ground post, and a water pipe, ground rod, or other authorized grounded source, and the other wire is run between the protector ground post and ground terminal on the coin relay in the paystation set. The first wire carries lightning discharges and high voltage foreign currents to ground, the second wire serves as a continuation of the coin relay circuit to ground.

A poor ground connection will offer a high resistance to the coin collect and return current, that is, assuming the coin relay has been properly adjusted to its normal operating current, the poor ground connection will prevent sufficient current from flowing to overcome the tension of the relay armature control springs.

To test for this condition, first determine that the line circuit is O.K. from the M.D.F. into the central office equipment. Then test out on the line to the station, and make a continuity test. As its name implies, a continuity test is made to ascertain if a pair of wires or a single conductor is continuous between the exchange and point of connection at the station equipment.

A simple way to apply the test is to have the line short circuited at the protector, as shown in *Fig. 1*, and measure the loop resistance. Assume the measurement equals 500 ohms. Dividing this by two gives 250 ohms for each side of the line. Now measure each line wire to ground, respectively, as shown in *Figs. 2* and *3*. The measured resistance of each conductor should equal 250 ohms, plus the resistance of the protector ground circuit itself which should not be more than about 10 ohms.

However, if the measurement of each line wire equaled 1,600 ohms it is an indication of a very high resistance in the protector ground circuit that would result in the paystation coin relay not receiving the required 0.060 or more amperes operating current. It is determined as follows: 1,600—250=1,350

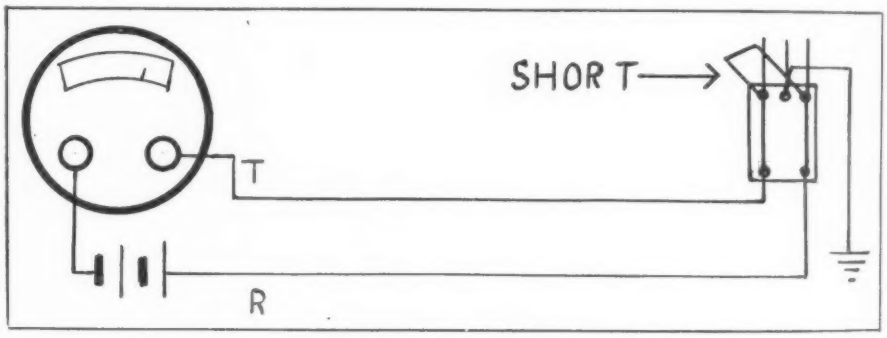


Fig. 1

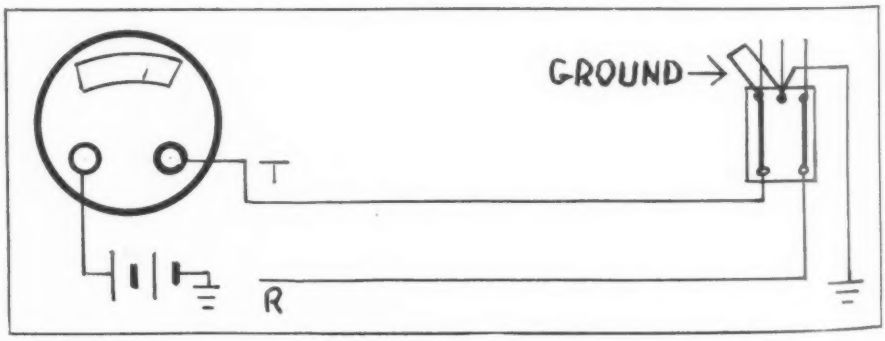


Fig. 2

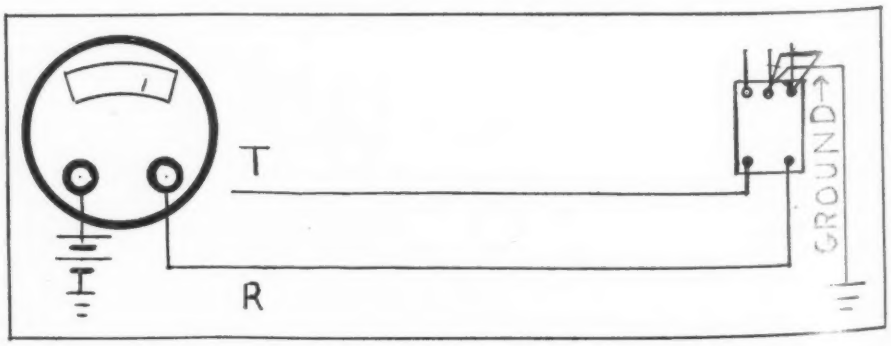


Fig. 3

ohms resistance to ground. Then 1,350 ohms+1,100 ohms (relay)+250 (line wire)=2,700 ohms. By Ohm's law, I=E÷R, or 110 (coin relay operating voltage) ÷2,700=0.040 amperes.

If the high resistance is in the line conductor instead of the protector ground circuit it will not only cause the non-operation of the paystation coin relay but it will also affect the proper functioning of the central office equipment both from a transmission and switching standpoint.

If there is a ground on the line having a resistance which is less than the coin relay winding, the greater portion of the coin collect or coin return current will flow through the low resistance path from the line to ground.

Example: In *Fig. 4*, assume 110 volts direct current at the central office (C.O.), 250 ohms in the line conductor, 100 ohms in the fault (F), and 1,100 ohms in the coin relay (RL). The equipment of this circuit is represented in the network shown in *Fig. 5*. In solving direct current networks, it is usually desired to find the voltage drop, also the current value in the several branches when the resistance of each individual branch and the source of EMF are known.

In *Fig. 5*, the current flows from point "P" to point "P_1" through resistors "A" and "B," and although the two paths are quite different in resistance, the value of the current flowing in each resistor is also different. The voltage drop is the same. That is, in the case of conductors connected in parallel, the drop in voltage over each conductor is the same.

Furthermore, the drop in voltage from point "P" to "P_1", is obtained by multiplying the amperes and total resistance between those points. Example: Find (1) the total resistance in the circuit, (2) the value of the total current, (3) the voltage drop from "P" to "P_1", and (4) the current through resistor "A" and "B", respectively. Solution:

(1) The combined resistance of the resistors "A" and "B" in parallel is equaled to their product divided by their sum, or 100×1,100=110,000÷1,200 =91.6+250=341.6 ohms total resistance.

(2) The total current equals I=E÷R or 110÷341.6=0.322 amperes.

(3) The current from "P" to "P_1" is 0.322 amperes, and the resistance from "P" to "P_1" is 91.6 ohms. Therefore, the voltage drop from "P" to "P_1" is equal to 0.322×91.6=29.5 volts. Since the voltage drop from "P" to "P_1", as found, is 29.5 volts, the drop over the path through resistors "A" and "B" is also 29.5 volts.

(4) Hence the current in resistor "A" will be 29.5÷100=0.295 amperes,

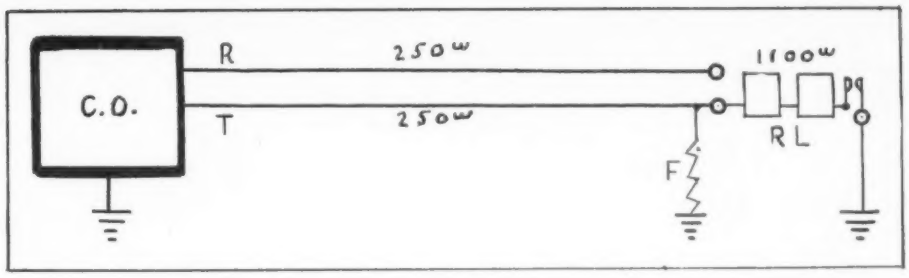


Fig. 4

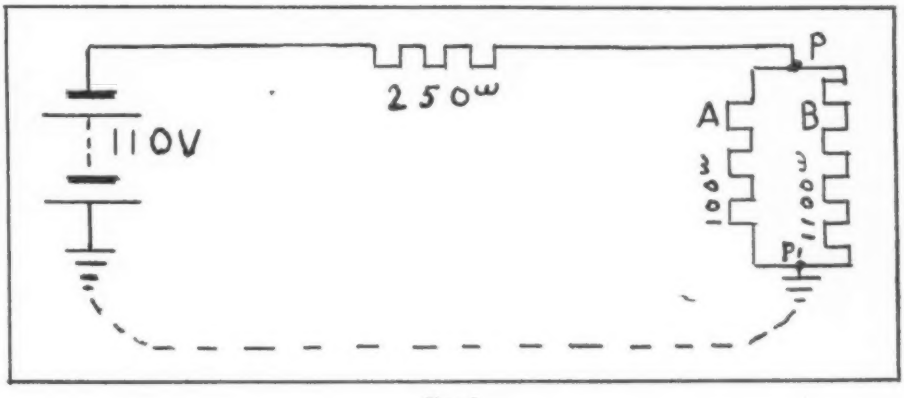


Fig. 5

and in resistor "B" will be 29.5÷1,100 =0.027 amperes through resistor "B" which, in the case of *Fig. 4*, would be insufficient to operate the coin relay.

The current values obtained may be verified by an application of Kirchoff's first law which states "that at any point in a circuit there is as much current flowing to the point as there is away from it, and applies regardless of the number of branches connected to that particular point."

Considering point "P" in *Fig. 5*, if "It" is the total current being furnished by the battery "E" to the two resistors, "A" and "B," in parallel, and I_1 and I_2 are the respective currents through the two parallel resistors, then $It=I_1+I_2$, or .0295+.027= 0.322 amperes.

In a case where a call cannot be originated from a prepay telephone station there are two principal causes for this trouble. Either there is no battery on the line, or there is a fault in the telephone circuit or coin relay. If there is no battery on the line, or the fault is in the coin relay circuit, and a coin is dropped in the coin machine and the handset removed from the hook, the operator, in case of manual areas, will not answer, and in case of dial areas, the dial tone will not be heard. The relay windings may be open, grounded or short circuited. The latter, however, rarely occurs. There may be a loose connection at either relay terminal, or poor connection at the contact springs.

The purpose of the contact springs is to disconnect the coin relay from ground when the relay is not in use, and to connect it to ground when required. Faults occurring in the relay contact springs are generally of a mechanical nature such as dirty or badly pitted contact points, insufficient tension in the contact springs, etc. There are a number of causes which will create an open in a prepay station coin relay circuit, such as an open in the ground wire and at ground clamps attached to water pipes, ground rods, etc.

Another cause is an open in the coin relay electromagnet coils caused by lightning discharges and foreign current occasionally escaping past the station protector and into the relay coils causing them to burn out.

It is always well to carefully examine the station wiring and ground connections to make sure they are in good condition before final adjustments of the coin relays are made. Under no circumstances should a defective relay be allowed to remain in use. Periodical testing of prepay coin box telephone lines, and clearing any possible trouble that is detected should aid in maintaining uninterrupted service.

(To be continued.)

V V

Manager at Roxboro, N. C.

Walter Murray has assumed his duties as manager of Morris Telephone Co., Roxboro, N. C.

Mr. Murray, employe of the Carolina Power & Light Co. for 12 years, was with the Roxboro office of the light company three years. For several years he was branch manager of the light company at Troy, N. C.

NORTH DAKOTANS HOLD *41st Annual Convention*

By A. J. McINNES
Secretary-Treasurer
North Dakota Telephone Association

THE 1949 annual convention of the North Dakota Telephone Association was held at the Gardner Hotel in Fargo on June 9 and 10. This was the 41st annual convention of the association and one of the best it has had in recent years.

The convention was called to order by President W. G. Matson, owner of the Stanley Telephone Co. After briefly reviewing the activities of the association since its last meeting, he discussed the political aspects of the organized effort being made to destroy the Independent telephone business as a free enterprise.

He said that the Poage Bill looks harmless at first glance and appears merely to provide a subsidy for government loans for the purpose of encouraging the extension of rural lines, and that the telephone companies as a group "have a battle on our hands and the sooner we get into the fight the better."

He touched on the proposed minimum wage-hour law and explained how serious it could be to the smaller companies in particular. He hoped that Congress could be convinced that the requirements of the minimum wage-hour law, insofar as the telephone industry is concerned, should provide for an exemption for operators in exchanges of 1,000 stations or less instead of 500 or less as it is at present.

Mr. Matson recalled that some years ago, telephone companies in North Dakota had an agreement with the electric power companies (with the backing of the North Dakota Public Service Commission) which provided that if a power company built a line parallel to a telephone line, it was the power company's liability to pay for the material necessary to make the telephone line metallic. However, since REA has come into the picture, a law has been passed exempting the power companies from such liability. This, Mr. Matson stated, has done more to retard the extension of rural lines in North Dakota than any other factor.

Clyde McFarlin, Montezuma, Iowa, president of the Iowa Independent Telephone Association, spoke on "The Future of the Small Telephone Company." Most of his talk had to do with the telephone industry's views regarding the Poage Bill and the minimum wage legislation before both the Senate and House of Representatives. He graphically described the sessions he attended in Washington where he appeared before congressional committees in connection with hearings on wage-hour legislation. He said: "I think those two bills—Poage and Minimum Wage-Hour—could kill the small telephone companies."

He urged that the small companies in particular strive for better management and more planning, as this would forestall some of the difficulties that lie ahead. He mentioned that when small companies let their plants wear out and make no provisions to rebuild them and furnish good service, they, themselves, are to blame for any difficulties they face because the general public is demanding better service and is usually willing to pay for it.

An exceedingly interesting part of his talk was that portion devoted to the work being done by the Small Company Committee of the Iowa association. He reported in detail the experiences of the newly organized Emeline and Iron Hill Telephone Co. in Iowa, in establishing a community dial system serving about 140 customers in a sizable rural area which had been without service for about 15 years (TELEPHONY, June 25, p. 27).

Stuart H. Kelley, Omaha, Neb., traffic operations supervisor, Northwestern Bell Telephone Co., talked on "What Traffic Management Produces." He said that telephone companies deal with many things, but mostly with people, the people they serve and the people who operate their plants. He referred principally to telephone operators who handle their assignments so helpfully and so courteously that the whole United States looks to them as the watch word of the friendly voice.

He stressed that the basic item which telephone companies produce is the *completed call.* It is the end product, but with it goes a wealth of tone and quality in the way it is produced—the

Officers and directors of the North Dakota Telephone Association. Seated, left to right: CHARLES F. VAIL, vice president; W. G. MATSON, president; A. J. McINNES, secretary-treasurer, and JOE WILHELMI. Standing, left to right: R. E. CLISBY, JOHN NILSEN, JOHN GOTTEBURG, G. B. BROWN, R. R. BORMAN. Not pictured, W. R. WILLIAMS.

friendly, capable, interested, personalized attitude of the operator handling the call. Back of the *completed call* comes the construction of the plant, the installation of the customer's telephone, working an order through all of the records and the hiring, orienting and training of all employes in all departments, all of which builds up to *the completed call.*

Mr. Kelley added that today we are handling four requests of a customer for our product for every three times we produce a conversation on a call for another telephone in the local calling area. Less than 15 years ago, out of every six requests from customers we could produce five local calls. Production, therefore, is down from five out of six to three out of four.

Part of the reason for this is the present high development of two and four-party service. He stressed the need for more effort to convince telephone users to follow the golden rule of waiting as long for their party to answer as they would want him to wait for them.

John L. Nilsen, manager, Nome Telephone Co., discussed "Experience and Problems of the Rural Telephone Company." He particularly emphasized the need for closer cooperation of all companies and urged the start of a campaign to get more North Dakota companies to join the association. He also stressed the need for better understanding and cooperation in connection with telephone problems caused by REA development.

Presiding at the last day's session was Charles Vail, Milnor, vice president of the association. The first speaker on that day's program was R. E. Clisby, Devils Lake, district manager, Central Telephone Co. His subject was "Employe-Customer Relations."

Photographed at the speakers' table at the North Dakota convention banquet are, left to right: J. C. CROWLEY, JR., secretary, Minnesota Telephone Association; MRS. CROWLEY; MRS. H. A. BROWN and MR. BROWN, Griggs County Telephone Co., Cooperstown, N. D.; MRS. W. G. MATSON and MR. MATSON, president, North Dakota Telephone Association.

He emphasized that while the importance of the customer relations has been evident for many, many years, the public was inclined during the war years to overlook minor service interruptions and causes for complaints, and even the attitude of telephone company employes as they dealt with any particular situation.

However, Mr. Clisby said, since the war the public expects, and properly so, that the telephone company should be operating on a basis to give the best possible service. He said the public has a right to expect courteous and efficient treatment from employes of the company. He urged that all companies recognize that employes with tact and a good knowledge of the work they are performing will do the best job for all concerned. "With good customer and employe relations, you will find that the public will be sympathetic to your problems whether they be service complaints, delays in providing necessary facilities, requests for rate changes or even having to ask a person for payment of his account," Mr. Clisby concluded.

The next speaker on the program was C. W. McDonnell, president, North Dakota Public Service Commission. He spoke on the subject, "Rural Development in North Dakota in the Last Five Years." He stated that "according to the reports to the commission on rural service development in North Dakota during the last five years, there was a net gain of 5,319 rural telephones in the state." Of this total, 3,308 were reported by the Northwestern Bell Telephone Co. and the smaller companies reported 2,011. Mr. McDonnell considered the increase in rural development substantial.

He mentioned that it was apparent that the smaller companies must increase their rates in order to improve their service and that the commission, realizing this situation, is willing to hold rate hearings as requested. He emphasized the importance of good public relations for all telephone companies and said: "The policy of our commission is to try and settle problems and to give the people of North Dakota the best possible telephone service with the lowest possible rates with a reasonable return to the telephone companies."

Clinton J. Johnston, Fargo, N. D., area engineer, Northwestern Bell Telephone Co., spoke on "The Engineering Problems of the Small Exchanges." He stated that there are 248 Independent telephone companies in North Dakota, of which 225, or about 90 per cent, have less than 250 stations. The Northwestern Bell company in North

C. W. McDONNELL, president, North Dakota Public Service Commission, addressing the convention. To the speaker's left is CHARLES VAIL, Milnor.

Dakota has about 40 exchanges with less than 200 stations and another 40 with less than 500. All of which, he said, indicates that the Independent and the Bell companies have many problems in common in meeting the challenge of service to the small community.

Most of Mr. Johnston's address was devoted to the problems faced by an owner of a small exchange who has a rebuilding program to manage. He stressed that before a major rebuilding program is undertaken it is necessary to carefully consider the exchange boundary, since the expansion of territory after a plant is installed can be very costly. He mentioned that telephone companies should accept definite responsibility for a known territory to be shown on published maps, including territories not previously desired because of lack of potential service requirements.

From a customer's standpoint, Mr. Johnston stated that exchange service in a small town is worth less because there are fewer customers that he can call. This falling off in value of service is objectionable to customers in cases where the exchange area does not include a doctor, drug store, and other essential service establishments which must be called on a regular or emergency basis.

He mentioned that in cases like this it is sometimes possible to make the exchange area larger by combining it with another exchange on an extended service basis.

J. C. Crowley, Jr., St. Paul, Minn., secretary of the Minnesota Telephone Association, devoted most of his talk on "Remarks of a Pioneer" to a discussion of the need for protecting the telephone industry against unfavorable legislation such as the Poage Bill and the wage-hour law. He stressed the need for doing everything possible to assure the continuance of free enterprise in our country.

"All of the conveniences we have in our homes and on the farms have come about through American ingenuity, but we still have some men in Washington who would dispense with free enterprise," Mr. Crowley stated.

He traced the history of the telephone industry since its inception and touched on the competitive era and the problems of regulation following a period when, for example, there were no longer three telephone companies serving the same community. He urged all associations to actively protest adverse legislation now before Congress.

The last speaker on the program was J. H. Condon, secretary-treasurer of the North Dakota Association of Rural Electric Cooperatives. His address, "REA and Telephone Relations," was devoted largely to a plea for better cooperation and understanding between REA and the telephone industry. He stated: "We are keenly interested in your progress and well-being. We would like to see telephone service extended to every farm we serve *and we feel that you are the ones to do that job.*"

At the registration desk are, left to right: A. J. McINNES, secretary-treasurer, North Dakota Telephone Association; W. J. BRAZELL, vice president and general manager, Northwestern Bell Telephone Co.; ELAINE SKAVIS and PHYLLIS SLICHTER, both of Northwestern Bell Telephone Co., and R. H. BURFEIND, Chicago, Ill., Automatic Electric Sales Corp.

Power companies make a great deal of use of communications facilities and Mr. Condon said he was certain that they have much in common with the telephone companies even though their working finances came from different sources. He said he was on a "mission of good will" and pledged that the association he represents will do everything it can to cooperate with the telephone companies in North Dakota.

The following were elected to the board of directors of the association: R. R. Borman, Fargo; G. B. Brown, Enderlin; R. E. Clisby, Devils Lake; John Gotteburg, Mayville; W. G. Matson, Stanley; John Nilsen, Nome; Charles Vail, Milnor; W. R. Williams, Minot, and Joe Wilhelmi, Starkweather.

Officers re-elected are: President, Mr. Matson; vice president, Mr. Vail, and secretary-treasurer, A. J. McInnes.

V V

W. J. Holladay Named Head Of Alabama Company

W. J. Holladay, formerly district manager of the Southern Continental Telephone Co., Cookeville, Tenn., on July 1 was appointed general superintendent and purchasing agent of the Alabama Telephone Co., Fayette, Ala.

He will have charge of all matters pertaining to the operation of the Alabama company heretofore assumed by J. N. Cox, Jr., who is taking a leave of absence because of ill health.

Mr. Holladay has had 42 years of service in the telephone industry, serving in various capacities for the Southern Continental company and its predecessor, the Gainesboro Telephone Co.

He is a member of the Independent Telephone Pioneer Association and Telephone Pioneers of America.

V V

Husing, Jahn Appointed to New Positions by Lincoln T&T

W. H. Husing has been appointed by the Lincoln (Neb.) Telephone & Telegraph Co. to be manager at Sterling. He will also have exchanges at Burr, Adams and Cook under his supervision. Mr. Husing has been with the company for seven years.

Appointment of G. W. Jahn as head of the revenue accounting department, succeeding Roy Galley, who has entered private business, has also been announced. Mr. Jahn has been with the company 29 years.

V V

Retires from Telephone Field

C. S. Nevin, active for 45 years in the Nebraska telephone field, has retired from the service of the Lincoln (Neb.) Telephone & Telegraph Co. He was formerly manager at Exeter and Ashland.

V V

Purchase Kansas Independent

The Mullinville (Kan.) Telephone Co. has been sold to Mr. and Mrs. Howard Kendall, according to a recent announcement.

V V

>> At the beginning of this year there was an estimated total of 25,000,000 telephone subscribers in the United States. The nation's estimated total of telephones was 38,200,000.

Courts and Commissions

Rules City Taxes Can Be Passed On to Subscribers

Taxes levied on the Pacific Telephone & Telegraph Co. by Washington municipalities can be passed on to subscribers, according to a decision June 23 by the state supreme court.

The opinion sustained an order issued in October, 1947, by the old State Department of Public Utilities authorizing the company to pass such taxes on to subscribers on a pro-rata basis.

The municipalities of Seattle, Spokane, Yakima, Tacoma and Bellingham had contested the order.

Thurston County Superior Court had upheld the department except on one point. It held that the company could not charge subscribers with payments made to cities for use of streets to maintain lines and poles. The cities, the company and public utility department appealed.

The state supreme court ruled that payments made for use of streets also could be passed on to subscribers. It directed the lower court to modify its decision to include this.

In a unanimous five-judge opinion, the supreme court stated: "Taxes of whatever kind or nature, are part of operating expenses and of necessity must be taken into consideration in fixing rates to be charged by public utilities."

V V

Higher Rates Approved For Common Battery Service

The Minnesota Railroad & Warehouse Commission on June 24 approved an increase in the main station rates of the Arlington exchange of the Minnesota Community Telephone Co., upon conversion of the exchange to common battery operation.

The exchange serves 283 town and 247 rural stations. The old and new net rates are as follows:

	Old Rates	*New Rates*
One-party business	$4.00	$4.50
One-party residence	2.50	3.00
Four-party residence	2.00	2.50

The commission estimated that the original cost of the property, after conversion to common battery service, will be $71,700 and that the higher rates will produce a net income of $4,184 or a return of 5.83 per cent.

V V

Authorizes Rate Increases For Three Kansas Companies

Rate increases have been authorized by the Kansas Corporation Commission for the American Telephone Co., Abilene, Consolidated Telephone Co., Burrton, and the Home Telephone Co., Randolph:

American Telephone Co., Abilene:

Delphos

	Monthly Rates
Business, one-party	$3.25
Residence, one-party	1.25
Rural business	2.50
Rural residence	2.00
Handset, extra	.25

Valley Falls

Business, one-party	$4.25
Residence, one-party	2.50
Residence, four-party	2.00
Rural, business	2.50
Rural, residence	2.00
Handset, extra	.25*
Service stations	.75

*Per month for a period of 24 mo.

Highland

Business, one-party	$3.25
Residence, one-party	2.25
Rural, business	2.50
Rural, residence	2.00
Handset, extra	.25
Service stations	.75

Walton

Business, one-party	$3.00
Residence, one-party	2.00
Residence, two-party	1.75
City, subscriber owned telephone and company owned line	
Business	2.75
Residence	1.75
Switching service	1.00

Alton

City business, one-party	$3.50
City residence, one-party	2.25
City residence, multi-party	2.25
Rural, business	3.00
Rural residence	2.25
Switching service	
Business	2.00
Residence	1.00
Hand or deskset, extra	.25

Elsmore

Business, one-party	$2.00
Residence, one-party	2.00
Residence, multi-party	1.75
Rural residence	1.75

Summerfield

Business, one-party	$2.75
Residence, one-party	2.00
Rural	2.00

Palmer

Business, one-party	$2.25
Residence, one-party	1.85
Rural residence	1.65

Huron

Business, one-party	$2.50
Business, multi-party	2.50
Residence, one-party	2.00
Residence, rural	2.00

Scottsville

Subscriber owned telephones, company owned lines	$1.75

Bushton

Business, one-party, magneto	$2.75
Business, one-party, C.B.	3.25
Residence, one-party, magneto	1.75
Residence, one-party, C.B.	2.00
Residence, four-party, C.B.	1.75
Rural, business	2.50
Rural, residence, grounded	1.75
Rural, residence, metallic	2.25
Desk or handset, extra	.25

Agra

Business	$2.25
Residence	1.75
Rural, business	2.25
Rural, residence	1.75

Glen Elder

Business, one-party	$3.50
Residence, one-party	2.25
Residence, two-party	2.00
Rural, business	2.75
Rural, residence	2.25
Subscriber owned instrument	2.25
Desk or handset, extra	.25

Consolidated Telephone Co., Burrton:

Buhler, Haven and Burrton

City business, one-party	$3.50
City business, extension	1.25
City residence, one-party	2.25
City residence, four-party	2.00
Rural business	3.25
Rural residence	2.25
Switching service	
Business	1.50
Residence	1.00
Handsets, extra	.25

Assaria

City business	$3.50
City residence	1.85
Rural business	2.50
Rural residence	1.75

Home Telephone Co., Randolph:

City business, one-party	$3.00
City business, multi-party	2.50
City residence, one-party	2.25
City residence, two-party	1.75
Rural business	2.50
Rural residence	2.25
Subscriber owned instrument	2.00
Switching service	.75

V V

Six Kansas Independents Receive Rate Increases

New rate schedules have been approved by the Kansas Corporation Commission for the following Independents:

Cawker City (Kan.) Mutual Telphone Co.:

	Monthly Rates
Common Battery	
Business, one-party	$4.00
Residence, one-party	2.50
Magneto	
Business, one-party	3.00
Residence, one-party	2.00
Residence, four-party	1.75
Rural, business	3.00
Rural, residence	2.00

Preston (Kan.) Telephone Co.:

	Monthly Rates
Business, one-party	$3.00
Residence, one-party	2.25
Residence, four-party	2.00
Rural, residence	2.25
Handset, extra	.25

Farmers Mutual Telephone Co., Whiting:

	Monthly Rates
Business, one-party	$2.75
Residence, one-party	2.25
Residence, two-party	2.00
Rural, residence	2.00
Desksets, extra	.25
Handsets, extra	.50

Wilson (Kan.) Telephone Co.:

	Monthly Rates
Business, one-party	$3.00
Residence, one-party	1.75

Farmers District Mutual Telephone Co., Alta Vista:

	Monthly Rate
Subscriber owned instruments and lines	$ .75

Albion Telephone Co., Narka:

	Monthly Rate
All classes of service	$1.50

V V

Authorizes $760,000 Increase For NW Bell in Nebraska

Additional gross annual revenues of $760,000 were granted to the Northwestern Bell Telephone Co. by the Nebraska State Railway Commission June 28. This amount is 25 per cent, or $250,000, less than the sum requested in the company's application of Dec. 14, 1948. Under the new schedule, the company will realize a return of 6.5 per cent on an adjusted net investment rate base which is somewhat lower than that claimed in its application (TELEPHONY, Dec. 25, 1948, p. 22).

The commission approved in full the amount requested for intrastate toll service but reduced the sum for local service. The new toll rates, effective Aug. 1, will result in increases generally of five cents on station-to-station calls with some larger raises on person-to-person, night and Sunday calls. New local rates, for which the company is submitting schedules, will become effective with August billing dates, subject to commission approval.

In commenting upon the action of the commission, A. F. Jacobson, vice president and general manager, said:

"It is, of course, a matter of concern to us that our request has not been granted in full. The price relief we asked was, in our judgment, the minimum required to assure adequate service for the people of this state, and was extremely modest in comparison with the increases we have experienced in our costs.

"However, we are accepting the commission order because the revenue increases which were authorized will give us substantial and much needed relief, and, in accordance with that order, we will promptly file revised local exchange rates."

V V

Granby, Mass., Independent Receives Rate Increase

Higher rates have been authorized for the Granby (Mass.) Telephone & Telegraph Co. by the Massachusetts Department of Public Utilities. The new schedule includes:

Local Exchange Base Rates

		Air Line Miles	
	Per Month	*From*	*Over*
One-party, bus.	$4.00	0	
One-party, res.	2.75	¼	
Two-party, bus.	3.75	½	
Two-party, res.	2.50	¾	
Four-party, bus.	3.25	1	
Four-party, res.	2.25	1½	
Rural line bus.	3.00	Ea. add'l. ½ mile	
Rural line res.	2.25	or fraction	

Under the authorized rates the company will realize gross operating revenues, including net toll revenues, of $16,699, the commission pointed out. Value of the property used and useful in rendering service was set at $21,668 which with a net income of $1,007, plus some credit for interest on notes payable in the principal amount of $1,700, represents a return of more than 4.65 per cent, the commission said.

V V

Illinois Bell Cuts Construction On Rate Increase Denial

Directors of Illinois Bell Telephone Co. June 27 halted or deferred nearly half the construction in progress or scheduled under its current $100,000,000 program of improvements and expansions.

The action resulted, the directors announced, from a court decision on June 22 in which Judge Frank M. Padden, of Chicago Superior Court, denied the company's petition for a temporary injunction which would have permitted Illinois Bell to increase rates to provide $26,500,000 additional annual revenue (TELEPHONY, July 2, p. 24).

The directors ordered work halted immediately on $12,400,000 in improvement and expansion projects already under construction. They also ordered that no commitments be made on contemplated construction to cost 34 million dollars more. The delay, according to the announcement, is "for a month up to an indefinite period."

Circumstances which forced these decisions, the directors said, also will affect employment.

"First effects," the announcement stated, "are likely to be felt by outside contractors and subcontractors and by the Western Electric Co., at whose Chicago-Hawthorne plant much of our telephone service equipment is made. And as our construction activities continue to slow down the effects will be felt by our plant forces. We already have halted all hiring of men."

Construction was halted on a building addition which would provide improvements of service for several Chicago exchanges. Service at many other exchanges in Chicago and downstate will be affected.

The directors voted to withhold further authorization for short-term

Local Exchange Service Mileage Charges

	Per Month		
Up to and Including	*One-Party*	*Two-Party*	*Four-Party*
¼	$0.70	$0.40	$0.20
½	1.40	.80	.40
¾	2.00	1.15	.60
1	2.50	1.45	.75
1½	3.50	2.05	1.05
2	4.50	2.65	1.35
	1.00	.60	.30

borrowing. Construction during the last 12 months, the directors said, has been financed by short term loans of which about $90,000,000 are outstanding.

On May 12, the Illinois Commerce Commission granted the company temporary rate increases to produce $7,600,000 a year, or less than a fourth the $34,100,000 the company had asked. The company then petitioned unsuccessfully for the temporary court injunction which would have restrained the commission from interfering with the company in putting into effect charges which would have produced the full amount. The commission expects to rule by October 10 on the company's petition for permanent increases to produce the $34,100,000.

V V

Appeals from Commission Order on Improvements

The Eastside Telephone Corp., Isle, Minn., on June 20 appealed to the 15th district court, Aitkin County, from a May 23 order of the Minnesota Railroad & Warehouse Commission, which directed the company to make extensive improvements in its plant and service.

The commission's order was a result of service complaints filed with the commission by subscribers of the Eastside company. The commission stated it had made an investigation and found that improvements were necessary and ordered that they be made.

V V

Two North Carolina Companies File Rate Increase Petitions

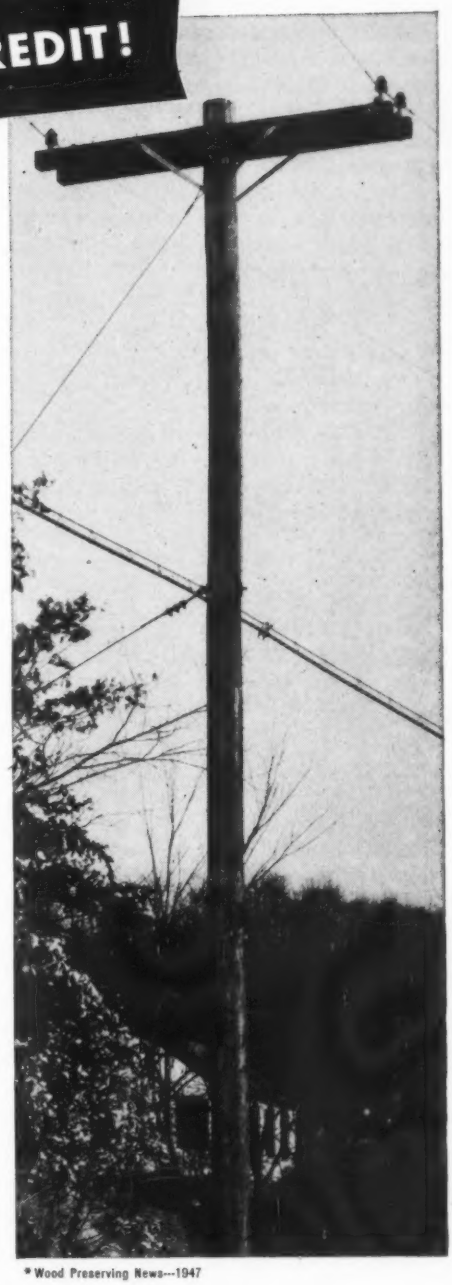
Authority to make granted rates effective and to establish a schedule of higher charges was recently requested by the Heins Telephone Co., Sanford, and the Citizens Telephone Co., Brevard, of the North Carolina Utilities Commission.

The Heins company, which had been previously authorized to increase its rates upon completion of an expansion and improvement program, is petitioning the commission for permission to make the increase effective Aug. 1, contending that completion of the improvement program will be impossible without the rate increase (TELEPHONY, Mar. 12, p. 27).

In requesting the step, E. C. Heins, Jr., general manager of the company, reported that present earnings of the company are not sufficient to obtain the necessary capital with which to complete the improvement program. The company recently constructed a new building, employed four additional operators, extended two more trunk lines to Jonesboro, N. C., and strung

CASE HISTORY
confirms 30-year service life for treated poles

...AND CREOSOTE GETS THE CREDIT!



HERE's a convincing case history* concerning 71 pressure-creosoted pine poles—part of an electric power transmission line erected in Kansas in 1917.

In 1947, after 30 years in line, 68 out of 71 poles were still sound and serviceable—furthermore, the inspection revealed that these poles appeared to be capable of service for some time to come. Of the remaining 3 poles, 2 had been removed because of line changes—1 had been damaged by lightning.

Of the original 71 poles, *not a single one had been removed because of decay*—a splendid testimonial to creosote. And all the more noteworthy when you consider that the preservative treatment used to protect these poles was somewhat lighter than is now regarded as good practice.

Creosote is the performance-proved, time-tested preservative for poles and crossarms. And for the best possible creosote delivery service, get in touch with the nation's largest distributor—Koppers. With 14 creosote-producing plants—with 4 large storage plants—Koppers can always meet your creosote requirements.

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*Wood Preserving News—1947

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For All Types of Wood Preservation

KOPPERS CREOSOTE...to be sure!

additional cables in other sections. A hearing on the request was set for July 11 by the commission.

The Citizens Telephone Co., serving 700 subscribers, is requesting authority to increase its rates $10,000 a year, which would mean a raise of approximately 20 per cent. The company's gross income now is about $50,000 a year.

V V

Southwestern States Granted Rate Increase in Texas

A new schedule of rates, carrying increases averaging 25 per cent, became effective July 1 in Carrollton, Tex., for the Southwestern States Telephone Co., Brownwood, following authorization by the city council. There is no public utility regulatory commission in Texas.

Monthly rates for desk and handset equipment follow:

Business, one-party, $4.75; two-party, $4.25; extension, $1.00.

Residence, one-party, $1.00; two-party, $2.75; four-party, $2.25; extension, 75 cents.

Two hundred new dial telephones have been installed in Carrollton, and another 100 will be put in to complete the town-wide system, it was announced.

V V

Summary of Commission Rulings and Hearings

California Public Utilities Commission

June 20: Hearings on complaints against Pacific Telephone & Telegraph Co.; of Charles A. Byrne regarding restoration of service; of Walt Harrison regarding failure to state a cause of action within the commission's jurisdiction.

Kansas Corporation Commission

July 15: Hearing on application of American Telephone Co., Abilene, for authority to change rates at its Clyde, Durham, Kincaid, Morland, Oskaloosa, Pomona and Westphalia exchanges.

July 25: Hearing on application of Otis (Kan.) Telephone Co. for authority to change rates.

July 25: Hearing on application of Border Telephone Co., Syracuse, for authority to change rates at Syracuse, Johnson and Manter.

July 29: Hearing on application of Linn (Kan.) Rural Telephone Co. for authority to change rates.

Minnesota Railroad & Warehouse Commission

July 11: Hearing on application of Lowry (Minn.) Telephone Co. for authority to change rates.

July 12: Hearings on applications of Boyd (Minn.) Telephone Co. and Home Telephone Co., Cottonwood, for authority to change rates.

July 18: Hearing on application of Morristown (Minn.) Telephone Co. for authority to change rates.

July 18: Hearings on applications of Scott-Rice Telephone Co., Prior Lake, and Morristown (Minn.) Telephone Co. for authority to change rates.

July 19: Hearing on application of Home Telephone Co., Grand Meadow, for authority to change rates.

July 19: Hearing on application of Eyota (Minn.) Telephone Co. for authority to change rates.

New York Public Service Commission

July 5: Hearing on petition of New York Telephone Co. for authority to increase rates.

Oklahoma Corporation Commission

July 12: Continued hearing on application of Chattanooga, Okla., Chamber of Commerce for improved service from Southwestern States Telephone Co., Brownwood, Tex.

July 12: Hearing on application of Loyal (Okla.) Telephone Co. for authority to increase rates.

July 14: Hearing on application of Foster Esel for service from the Caddo exchange of the Southwestern Bell Telephone Co.

July 22: Hearing on application of Carnegie (Okla.) Telephone Co. for increased rates for common battery and rural switching service.

July 25: Continued hearing on application of Mulhall residents for improved service from Southwestern Associated Telephone Co., Lubbock, Tex.

Wisconsin Public Service Commission

July 6: Hearing on application of Brule (Wis.) Telephone Co. for authority to revise rates and rules.

July 6: Hearing on application of Browntown (Wis.) Telephone Co. for authority to increase rates.

July 7: Hearings on rate applications of Community Telephone Co. of Wisconsin, Black River Falls, and Hollandale (Wis.) Telephone Coop.; former for authority to increase long distance rates.

July 8: Hearing on complaint of Art Hayden *et al* against Holcombe (Wis.) Telephone Co. and Wisconsin Telephone Co.

V V

>> There was an estimated total of 29,500,000 telephone subscribers in the United States at the end of 1948. The estimated total of telephones in the country was 38,200,000.

GOD GIVE US MEN

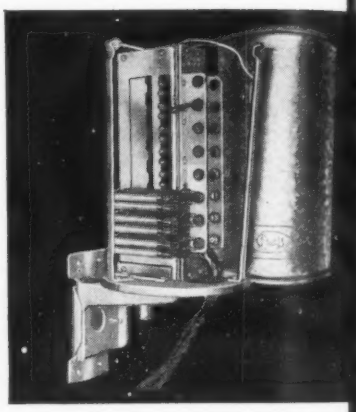
God give us men. The time demands
Strong minds, great hearts, true faith and willing hands;
Men whom the lust of office does not kill:
Men who possess opinions and a will;
Men who have honor, men who will not lie;
Men who can stand before a demogague
And damn his treacherous flatteries without winking;
Tall men, sun crowned, who live above the fog,
In public duty and in private thinking.

—Author unknown

STROM

cook type S-2

pole cable terminal



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Cook Type S-20 Pole Cable Te nals are carefully engineere offer the user:

MAXIMUM ECONOMY—because Type H 20 Protector Units, conta fuses and primary and secondary ning arresters, are added only a are required.

MAXIMUM CONVENIENCE for lation and servicing. Drop wire nections are at front. Drops ar through individual insulating k out holes. Self-soldering nozzle close to pole. Hood locks in raise ition for working. Separate mou bracket eliminates gaining of pol provides easy installation.

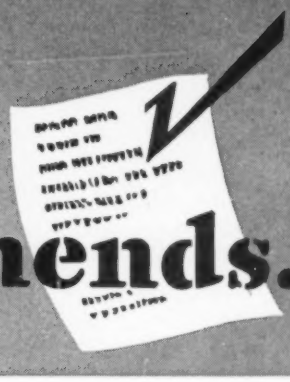
MAXIMUM PERFORMANCE used separately or as part of the Trans-Mount System of Protectio Distribution. S-20 is of all steel con tion, hot galvanized. Complete ter designed for maximum insulati

STROMBER

STROMBERG Telephone CARLSON

TELEPHONES, SWITCHBOARDS

ERG-CARLSON recommends...



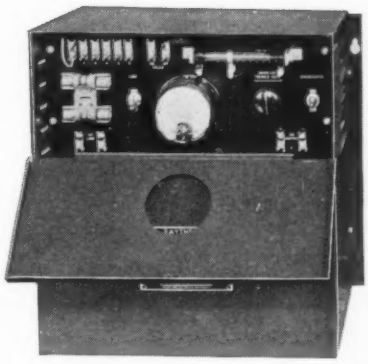
... dependable battery charging with the

raytheon recticharger*!

A small storage battery floated across the terminals of a Raytheon Recticharger provides closely stabilized DC voltage . . . longer battery life . . . and improved operation of manual or automatic telephone systems.

These are *proven* advantages that stem from exclusive design and long service to the telephone industry.

When replacing, expanding, or modernizing switchboard equipment, utilize Raytheon's extensive field experience and complete line. Available from 1.0 to 24.0 amperes with either 24 or 48 volt output.



*Reg. U. S. Pat. Off.

reliable zinc cable hangers

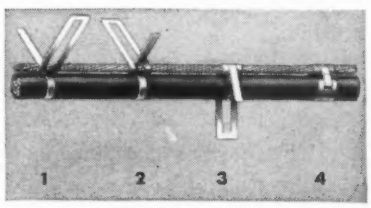
INSURE NO SHEATH CUTTING

NO CREEPING

NO RUSTING

Even badly worn cables hung with Reliable Zinc Cable Hangers will last much longer. The reason is merely that all cable movement that results in wear and sheath cutting is eliminated, because the cable is rigidly bound to the messenger. This is also an added lightning protection—a solid ground is established between messenger and cable.

Reliable Zinc Cable Hangers are strong, economical, and easy to install.



The four simple steps above clearly illustrate the simplicity of a Reliable Zinc Cable installation.

"RELIABLE" ***Identifies the Quality***

everstick anchors

. . . are designed to meet the most rigid anchoring and guying specifications.

The patented EVERSTICK Nut Housing locks anchor firmly on rod, making installation simple under all conditions and permitting easy recovery of the rod. Note well-designed, heavily constructed sections of metal in base plate.

EVERSTICK Expanding Plates are *ribbed* to double their original strength; their cutting edge and wedge shape arm socket reduces earth resistance to a minimum and assures easy expansion.

Three-Way EVERSTICK with expanding plates—contacts solid earth at every point around base plate, giving full benefit of earth's holding power.

Spreader Arms extra heavy ribbed with ball and socket joint at top and clinched socket on expanding plates allow heavy bearings to move freely with minimum friction, insuring easy expansion which eliminates buckling or breaking of arms.

EVERSTICK Anchor

. . . the anchor of merit

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May Fire Losses 8.6% Less Than at Same Time Last Year

Destruction of property and resources by fire in the United States during May totalled $54,162,000, according to estimates announced recently by the National Board of Fire Underwriters.

This loss represents a decrease of 8.6 per cent from losses of $59,256,000 in May, 1948, and a decrease of 2 per cent from losses of $55,290,000 reported in April, 1949.

May was the fifth successive month in which this country's fire losses have declined in relation to losses in the same months last year.

May losses bring the total fire destruction for the first five months of 1949 to $297,020,000, which is $34,754,000 or 10.4 per cent less than losses of $331,774,000 reported in the first five months last year.

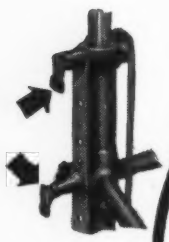
At an annual rate, losses for the 12 months period ending May 31, 1949 are estimated at $676,360,000, compared with $705,973,000 for the 12 months period ending May 31, 1948. This is a decline of 4 per cent.

These reported losses under fire insurance policies include an allowance for uninsured and unreported losses.

Cramer
TELEPHONE CHAIRS
for SWITCHBOARDS
and PBX BOARDS

Cramer Chairs are a "Natural" for switchboard jobs, with Hi-Models and Regular Models providing the best in posture seating for every application. They feature comfort, ease of adjustment, proper posture and outstanding versatility. Mobility provided by ball bearing casters means greater board capacity per operator, with less fatigue.

Model No. 2422R
Hite-Master



Hi-Model
HITE-
MASTER
Control

AUTOMATIC
ADJUSTMENT

The Hi-Model illustrated is equipped with the new oval shaped drop-front seat, pressure relieving molded foam seat cushion, and the new *Hite-Master Control* for automatic seat *and* foot-ring adjustment (indicated by arrows).

The Cramer Regular model illustrated is job-fitted to the new low-height switchboards. Boasting of all the fine qualities engineered and built into Cramer Posture Chairs, its usefulness is further enhanced by the unique *Hite-Master Control*, making change of operators a pleasure instead of a pest.

WRITE FOR LITERATURE

Model No. 22
Hite - Master

SPECIAL INSTALLATION

Call on Cramer Engineers to provide posture chairs to suit your particular requirements. Illustrated is a chair with a swivel lock which holds the seat stationary at any desired angle. It rolls on ball-bearing wheels on a special track fastened to the floor. If you have a problem in seating, Cramer will answer it!

DISTRIBUTED THROUGH
OFFICE EQUIPMENT DEALERS
Write for literature and name of nearest dealer.
CRAMER POSTURE CHAIR CO., INC.
1205 Charlotte Kansas City 6, Mo.

Nebraska Association Names Small Company Committee

The Nebraska Telephone Association recently appointed a committee to assist small telephone companies in that state in solving difficult operating problems with which they may be confronted.

Members of the committee are: B. A. Bunting, Columbus, commercial superintendent, Nebraska Continental Telephone Co.; Kenneth Lawson, commercial engineer, Lincoln Telephone & Telegraph Co., and E. J. Lake, Omaha, connecting company representative, Northwestern Bell Telephone Co.

Chicago Chapter of AFCA Hears Gen. F. C. Meade

The Chicago Chapter of the Armed Forces Communications Association on June 22 held a dinner meeting co-featuring Brig. Gen. Frank C. Meade as speaker, and a tour of the new Chicago long distance center of the Illinois Bell Telephone Co., where the 11-story building recently completed furnished excellent facilities for more than 100 members and guests.

Chapter President Oliver Read presided, and introduced General Meade (Retired), Deputy Chief, Gary Group Communications, who gave his audience an insight into military procurement in peace and war, based on practical experiences in purchasing and operations while in army service, and intimate knowledge of problems in industry.

General Meade pointed out that in time of war procurement trouble is not in getting money, but in getting production. He cautioned service procurement personnel against becoming involved with binding specifications on a new item, stating that it is usually possible to work with preferment specifications that will not entail complete re-tooling once production has begun.

As to field operations, General Meade said that only one question is important. Did the message get through the way it was written in time to be useful?

Ralph T. Brengle, program chairman, briefly outlined the schedule of chapter events for the coming months, with a summer recess, and said the next meeting would be held about Sept. 20.

Dwight L. Brown, general plant manager, Illinois Bell Telephone Co., acting in his dual capacity as host to the meeting, as well as chapter vice

president, briefed the group on the most interesting features to be seen in a tour of the long distance center. He was ably assisted by H. B. LaForce, building engineer, L. F. Bernhard, equipment engineer, and G. W. Williams, information supervisor. Conducted by technical experts, the tour was interesting and informative.

V V

William Shelmerdine Named AT&T Comptroller

William Shelmerdine, assistant comptroller for the past six years, has been appointed comptroller of American Telephone & Telegraph Co., effective Aug. 1, the company has announced. He succeeds Pierre W. Saxton, who will retire on that date.

WILLIAM SHELMERDINE

Mr. Shelmerdine began his telephone career 42 years ago as a clerk in the treasury department of the Providence (R. I.) Telephone Co., and was chief accountant of that firm when it was merged in 1921 with the New England Telephone & Telegraph Co. It was from the post of assistant chief accountant with the New England company that Mr. Shelmerdine came to the AT&T in 1924.

Mr. Saxton has been comptroller of AT&T since April, 1943, and had served as assistant comptroller 21 years previously. After graduating with Harvard School of Business Administration's first class in 1910, he was employed as a clerk with the AT&T Long Lines Department, of which he became auditor and later assistant comptroller.

V V

Establishes New Exchange

Another exchange — its 101st — has been established at Bath, N. C., by the Carolina Telephone & Telegraph Co., Tarboro. Dial operated, the exchange will serve approximately 50 subscribers.

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HARDWARE
HUBBARD HARDWARE
FOR THE
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Cable Suspension Material • Wire Holders
Pole Seats and Balconies • Clevises • Braces
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Pins • Clamps • Guards • Stubbing Bands
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Clips • Straps • Hangers • Carriage Bolts
Rings • Transposition Brkts. • Eye Bolts
Pole, Corner and House Brkts. • Guy Hooks
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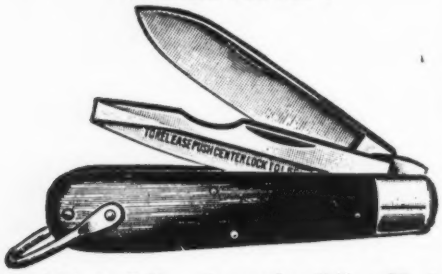
"HANG THE LOAD ON HUBBARD HARDWARE"
HUBBARD AND COMPANY
PITTSBURGH . . . OAKLAND CALIFORNIA . . . CHICAGO
MANUFACTURERS OF A COMPLETE LINE OF HARDWARE
FOR TELEPHONE REQUIREMENTS SINCE 1900

LINE EQUIPMENT SALES
"Order from L.E.S. and Pay LESS"

BETTER KNIVES FOR LINEMEN & INSTALLERS

Linemen's Skinning Knife of High Grade Alloy Steel. Holds its edge on any type of insulation.

$1.95 Each Post Paid



Electrician's Knife. A superior Knife with 1 Large Blade and a combination Cutting & Screwdriver Blade which locks open.

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Finest Quality Electrical Porcelain, Brown Glaze, One Inch Threaded Pin Hole. 2-3/16" Diameter, 3-1/8" High. You'll Like Them. Satisfaction Guaranteed.

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Made to guarantee top quality in insulation and top performance on your telephone installations. A complete and diversified line with each item especially engineered and produced to exacting specifications for telephone service.

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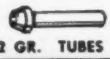

TUBES

PORCELAIN PRODUCTS, INC.
FINDLAY, OHIO

In the Nation's Capital

(Concluded from page 15)

Those Phony Co-op "Bucks"

Maybe it is just more politics, or maybe it is just a coincidence, but Uncle Sam's Secret Service has moved in on those amusing little "co-op bucks" that have been circulating around the country, thanks to the National Tax Equality Association (NTEA). Circulation of these funny-looking little pictures of dollar bills was promoted by the NTEA in an effort to stir up public understanding and resentment against the tax evasion practiced by co-op enterprises (through their statutory exemption from federal and sometimes state and local taxes).

There is evidence that the NTEA mock dollar bills were having considerable effect, judging by the squawks and complaints which the co-ops and their associations have been pouring into Washington in an effort to have this joker money suppressed. The co-ops obviously didn't think it was funny. It struck too sore a point.

And so, Uncle Sam's Secret Service, which has the responsibility of protecting the nation's currency, moved in on the printing plates and a backlog of "bucks" at the Chicago headquarters of NTEA. Secret service said the phony bucks resembled real money too closely in size and design. Some of the bucks even got into the White House—sent by pranksters who wanted to razz the Truman administration about its policy of permitting the co-ops to remain tax exempt under federal law. Others were sent in by red-hot co-op members, with equally red-hot letters of complaint, screaming about the NTEA "propaganda."

Such complaints were turned over to the Secret Service and, of course, when they come from high official sources—you can't expect a Washington bureau to ignore them.

The U. S. attorney in Chicago was asked for an opinion on whether the appearance of bogus bucks was sufficiently similar to the real article to violate the law which prohibits the imitation of U. S. currency. The U. S. attorney in Chicago, as might be expected, said "Yes." Thus it was that the Secret Service took over the plates and stock of bogus bucks on hand.

V V

>> Although the first telephone went into service in 1877, an instrument was not installed on the desk of the President of the United States until 1929. And although Peterborough, N. H., has had its free public library since 1833, Richmond, Va., long famed as a cultural center, did not establish its first public library until 1924.

V V

P. C. Staples, Retired Bell President, Dies

Philip C. Staples, former president of the Bell Telephone Co. of Pennsylvania, died in Philadelphia Hospital June 29 at the age of 66.

Mr. Staples headed the Pennsylvania Bell company for more than 14 years, retiring in October, 1947. He then continued as a member of the board of directors.

Born in Revere, Mass., Mr. Staples was graduated from Harvard in 1904. The University of Pennsylvania conferred upon him in 1940 the honorary degree of Doctor of Laws. He entered the communications industry 45 years ago as a salesman for the Chesapeake & Potomac Telephone Co. in Baltimore. He was elected president of that company in 1933.

V V

Incorporation

The Zachary (La.) Telephone Co., has been incorporated with a capital of $50,000.

COMING 1949 CONVENTIONS

Michigan Independent Telephone Association, Olds Hotel, Lansing, Sept. 22 and 23.

Rocky Mountain Telephone Association, Newhouse Hotel, Salt Lake City, Sept. 22 and 23.

United States Independent Telephone Association (annual convention), Stevens Hotel, Chicago, Oct. 10, 11 and 12.

Virginia Independent Telephone Association, Oct. 20 and 21, Chamberlain Hotel, Old Point Comfort.

North Carolina Independent Telephone Association, Carolina Hotel, Pinehurst, Oct. 27 and 28.

South Dakota Telephone Association, Cataract Hotel, Sioux Falls, Nov. 9 and 10.

Georgia Telephone Association, Henry Grady Hotel, Atlanta, Nov. 14 and 15.

Missouri Telephone Association, Governor Hotel, Jefferson City, Nov. 14 and 15.

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Northern White and Western Red Cedar
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Forty-seven years Bell System, terminating as Assistant Chief Engineer, Washington, D. C.
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Fully equipped to prepare estimates; construct outside plant; install central office equipment; prepare cable lay-outs and installations; emergency repairing of storm damaged plant.
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1120 2ND NAT'L BANK BLDG.

Cowan Named Secretary of Pennsylvania Company

Appointment of Paul L. Cowan as secretary and treasurer of Pennsylvania Telephone Corp. and five affiliated operating companies of the Eastern Group of the General Telephone Corp. with headquarters in Erie, Pa., has just been announced.

Mr. Cowan went to Erie from Madison, Wis., where he was assistant general auditor of General Telephone's Central Operating Group. He started in the telephone business in 1928 with the old Mid-West States Telephone Co., Rockford, Ill., as general auditor, later becoming secretary and treasurer.

In 1938 he joined Telephone Services, Inc., Fort Wayne, Ind., as secretary, remaining there until he went to Madison in 1946.

THIS REA CO-OP COULDN'T MAKE THE GRADE

The Malheur (Ore.) Electric Co-operative Association has disclosed it has been operating at a substantial loss and is selling out to the Idaho Power Co.

Harry B. Wilcox, association president, said the directors have approved the sale to the private company. He said accumulated losses are $100,977 and the co-op is in default to the government for $60,000 in principal and matured interest on loans.

He said the Idaho Power Co. has offered to pay $473,000 for all co-op facilities in Malheur County, Ore., and Payette County, Idaho. Other obligations are to be assumed by the private company under the plan.

RATE CASE STUDIES
HERDRICH BOGGS and CO.
Certified Public Accountants
803 Electric Building
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RECONDITIONED EQUIPMENT
Gray Pay-Stations, No. 11 @ $10—No. 14 type @ $12.
Common Battery Desk or Wall Sets, enclosed gong type, Straight Line Ringers, @ $8.00 per set.
Leich Electric No. 11-B Kick Coils, @ $3.00 each.
Kellogg No. 900 Desk Hand Sets, Self-Contained, @ $13.00 each.
Prices are FOB Chicago, Ill.
INDEPENDENT TELEPHONE REPAIR CO.
1432 W. Fifteenth St. Chicago 8, Ill.

CRAMER
TELEPHONE CHAIRS
for SWITCHBOARDS
and PBX BOARDS
Cramer Chairs are a "Natural" for switchboard jobs, with Hi-Models and low models providing the best in posture seating for every application. They feature comfort, ease of adjustment, proper posture and outstanding versatility. Mobility provided by ball bearing casters means greater board capacity per operator with far less fatigue.

Model 2422R—
With Hite-Master
The Hi-Model illustrated (seat height adjustment 23½" to 32½") is equipped with the new oval shaped drop-front seat, pressure relieving genuine molded foam seat cushion and the new Hite-Master control for automatic seat and footring height adjustment. Available with casters or glides.

Built for
Years of Service
Cramer Chairs are famous for durability, solid construction, simplicity and outstanding, posture-wise comfort. They pay for themselves, too, with dividends accruing from increased employee efficiency and well-being.

Model 22—
With Hite-Master
The Cramer Regular Model illustrated (seat height adjustment 17½" to 21") is job-fitted to the new low height switchboards. Boasting all the fine qualities engineered and built into Cramer Posture Chairs, its usefulness is further enhanced by the unique Hite-Master control, automatic seat height adjustment without effort.

Both models available without Hite-Master Control
Chairs for special applications upon request
Models 2422R and 22 Carried in Stock By

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